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Salivary Gland Tumors

GEORGE S. SHARP, M.D., and
JAMES T. HELSPER, M.D., Pasadena

IN VIEW of the surgeon's continued interest in the subject of salivary gland tumors, we reviewed our own material covering a 28-year period from 1932 to 1959 inclusive. All slides of tissues removed from patients either suspected of or proved to have tumors of salivary gland origin were reviewed histologically by Alvin G. Foord, M.D., and regrouped in general according to the classification and nomenclature used by Frank W. Foote, Jr., M.D., and Edgar L. Frazell, M.D., in their fascicle published by the Armed Forces Institute of Pathology⁷ and in their comprehensive article in *Cancer*.⁸ We are particularly grateful to Dr. Foote and to Dr. Fred W. Stewart for consultation on some of the more difficult slides.

Records of 248 cases covering a total of 251 tumors were reviewed. Three of the benign tumors were bilateral and are considered as single cases. The series, therefore, included 175 benign and 73 malignant tumors (Table 1). Of particular importance in the clinical management of these patients are the data on the last line in this table, showing that approximately 23 per cent of the parotid tumors, 42 per cent of the submaxillary, and 49 per cent of the minor salivary gland tumors were found to be malignant. Many of these patients

• In a review of a series of 248 salivary gland tumors, seen over a 28-year period, all pathologic material was brought up to date by reclassification according to more recent criteria and nomenclature. In parotid tumors, a probable lowered recurrence rate and a definite decrease in incidence of permanent facial nerve paralysis was found in the more recent cases in which the "Y" incision was used, with identification of the seventh nerve as it leaves the stylomastoid foramen. The five-year recurrence rate for primary mixed tumor was 8.3 per cent, and in recurrent cases it was found to be 18.1 per cent.

Of 44 patients with malignant salivary gland tumors in all sites who were observed for five years or more, 32 or 72.7 per cent survived five years.

when they were first seen had no signs of malignant disease other than the presence of the lump. These percentages should be kept firmly in mind in planning the treatment of such patients.

Table 2 shows the age and sex distribution. The only comment to be added here is that the youngest patient with a malignant tumor (age 22) had an acinic cell carcinoma in the parotid gland.

Tables 3, 4 and 5 give data on how many of the tumors, as they were found in the various glands, were benign and how many malignant. Of particular note in the benign group is that all except three of the tumors found in the submaxillary and minor salivary gland regions were mixed tumors. Malignant tumors were found in all the glands. Several lymphomas were also seen in the malignant group;

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From the School of Medicine and the School of Dentistry, University of Southern California, the Pasadena Tumor Institute and Pasadena Foundation for Medical Research (Sharp). From the College of Medical Evangelists, Los Angeles, and the Pasadena Tumor Institute (Helsper).

however, they are merely mentioned and not discussed since it is felt that they arose in lymph nodes in either the parotid or submaxillary gland, and no case (as far as we are able to determine) has been found to be primary within the gland itself.^{1,6,7}

Diagnostic Summary

CHANCES OF MALIGNANT CHANGE:

In parotid tumors.....	1 out of 4
In submaxillary tumors.....	2 out of 5
In minor salivary glands.....	1 out of 2

RATIO:

Parotid to submaxillary tumors.....	16 to 1
-------------------------------------	---------

Benign Salivary Gland Tumors

Mixed tumor—A total of 133 patients were seen with mixed tumors. One hundred and four occurred in the parotid, six in the submaxillary, and 23 in the minor salivary glands throughout the mouth. In the parotid group, 96 were primary untreated, and 11 had been operated on elsewhere. Of the 96, 62 were observed five years or more and in that time five recurred but were controlled by re-excision. Of the 11 originally treated elsewhere, two recurred and both were controlled by re-excision. As far as we know, no patients died of disease as long as the tumor remained benign. None of the patients operated upon through the "Y" incision (described later) had recurrence, but not enough time has elapsed for valid conclusions as to recurrence rate.

Papillary cystadenoma lymphomatosum (Warthin's tumor)—All of our 18 cases of Warthin's tumor were found in the parotid, and all were in males although approximately 10 per cent of these tumors are reported to occur in females.^{1,6,7} In two patients the tumors were bilateral, and in one instance there were two distinctly separate tumors on one side and a single tumor on the opposite side. Clinically these generally were seen first as a cystic lesion. In no case was recurrence noted.

Oxyphil adenoma—Clinically these are undistinguishable from benign mixed tumors. All four of our cases occurred in the parotid, and none recurred.

Benign lymphoepithelial lesion—A total of 13 patients were seen with this lesion. Eleven occurred in the parotid and two in the palate. All but one were in women. In one case the disease was bilateral, the second lesion appearing approximately three months after the first was removed. Five of the parotid lesions contained large cysts. In no case was recurrence noted.

Malignant Salivary Gland Tumors

Malignant mixed tumor—Eight cases were seen, all occurring in the parotid. All were observed five years or more. In three of the cases the lesion re-

TABLE 1.—Percentage of Malignant Tumors

	Parotid	Sub-maxillary	Minor Salivary	Total
Benign	143	7	25	175
Malignant	44	5	24	73
Total	187	12	49	248
Per cent malignant.....	23.5	41.7	49.0	29.4

TABLE 2.—Age and Sex Factors

BENIGN:	
Oldest.....	80 years
Youngest.....	18 (with 9-year history)
MALIGNANT:	
Oldest.....	84 years
Youngest.....	22 (with 6-year history)
AVERAGE AGE.....	51.1 years
SEX (females).....	61 per cent

TABLE 3.—Benign Salivary Gland Tumors

	Parotid	Sub-maxillary	Minor Salivary	Total
Benign mixed	104	6	23	133
Warthin's	18	....	....	18
Oxyphil adenoma	4	....	....	4
Benign lymphoepithelial lesion	11*	—	2	13
Miscellaneous	6†	1	....	7
Total	143	7	25	175

*Includes 5 lymphoepithelial cysts.

†Consists of 2 lipomas, 2 hygromas, 1 lymphadenitis and 1 simple cyst.

TABLE 4.—Malignant Salivary Gland Tumors

	Parotid	Sub-maxillary	Minor Salivary	Total
Malignant mixed	8	....	....	8
Mucoepidermoid:				
Low grade	5	....	5	10
Moderate grade	2	2	3	7
High grade	1	....	....	1
Squamous cell	4	1	....	5
Adenocarcinoma:				
Adenoid cystic	7	1	12	20
Acinic cell	4	....	....	4
Adenocarcinoma	5	1	4	10
Anaplastic	1	....	....	1
Miscellaneous*	7	....	....	7
Total	44	5	24	73

*Note: The miscellaneous group of malignant tumors consists of 4 lymphomas primary in nodes of parotid and 2 lymphomas occurring in nodes of parotid with signs of lymphoma elsewhere, and 1 leiomyosarcoma.

curred. In one it was controlled by subsequent operation, and two patients died of disseminated metastasis. Five were free of disease for five years or more.

Mucoepidermoid carcinoma—A total of 18 such lesions were seen, eight in the parotid, two in the submaxillary and eight in minor salivary glands. Ten were classified as low grade, seven as moderate grade, and one as high grade. Of the patients with low grade lesions who were observed five years or

TABLE 5.—Minor Salivary Gland Tumors

BENIGN	Palate	Lip	Cheek	Gum*	Pharynx	Total
Benign mixed ..	17	1	2	1	2	23
Benign lympho- epithelial lesion	2	....	....	....	....	2
Total	19	1	2	1	2	25
MALIGNANT	Palate	Lip	Cheek	Gum*	Tongue	Total
Mucoepidermoid	4	1	1	1	1	8
Adenocarcinoma	5	2	6	1	2	16
Total	9	3	7	2	3	24

*Note: Most histologists feel that no salivary gland tissue is in the gum or gingiva; however, clinically these tumors appeared to begin in this area.

more, four were living and well and one was dead of the disease. Of the three with moderate grade who were observed five years, two were living and well and one was dead of the disease. The patient with high grade tumor, who had been operated upon first elsewhere, died of widespread disease seven months after we carried out radical excision.

Squamous cell carcinoma—Four of these lesions were seen in the parotid and one in the submaxillary gland. Only two of the patients were available for five-year observation. One with a parotid lesion was free of disease five years or longer. The submaxillary gland tumor recurred promptly after operation, but was eventually controlled by neck dissection and the patient remained free of disease for five years.

Adenocarcinoma—There were 34 cases of adenocarcinoma, 16 in the parotid, two in the submaxillary and 16 in minor salivary glands. Of these, 20 were of the adenoid cystic type, four acinic cell and ten ordinary adenocarcinoma. Of the 15 patients with adenoid cystic lesions who were observed five years, seven had local recurrence. In three of the seven the lesions were eventually controlled and four died of the disease. It is of interest to note that two of the patients were first seen with widespread metastasis, and minimal procedures were used to control the primary tumor. These patients both lived over five years with widespread disease and at last report were dying of cancer. In both instances the lesions were adenoid cystic carcinoma, one of the floor of the mouth and one of the hard palate.

All four acinic cell cancers were controlled by parotidectomy. Three of the patients were given subsequent radiation or treatment with radon seeds. All lived five years or more without recurrence.

Ten cases of ordinary adenocarcinoma with varying cell patterns were seen. Five were in the parotid, one in the submaxillary, and four in the minor

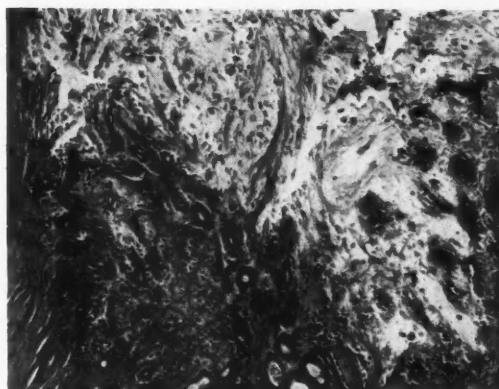


Figure 1.—Benign mixed tumor of parotid gland. Note aggregates of epithelial cells in which are several tubules. Epithelium shades directly into loose stroma ($\times 125$).

salivary glands. Six of the patients were observed five years or more. Two died of the disease.

Anaplastic carcinoma—In the one case of anaplastic carcinoma of the parotid, death occurred in less than five years, of obvious disease.

PATHOLOGICAL FEATURES

The gross and microscopic appearances of the lesions in the present series correspond fairly well with those reported by Foote and Frazell^{7,8} and by Ackerman.¹ Briefly, the findings in the various tumors were as follows:

Benign Tumors

Benign mixed tumor—The term *mixed tumor* or *complex adenoma* has been accepted for decades for this commonest tumor, which is generally about 2 to 5 cm. across, occurring singly but commonly appearing in multiple nodules of varying size if recurrence results from inadequate removal. Occasionally tumors of this kind may become huge without metastasis occurring. A tense, thin capsule, all too easily torn, usually surrounds an ovoid or slightly bosselated mass, varying in consistency from tumor to tumor or even in different parts of the neoplasm. A goodly number are largely myxomatous. The surgeon may easily tear a growth of this type, and the pathologist has much difficulty in trying to cut and trim appropriate pieces for histologic study. Others with a component of connective tissue or cartilage may be quite firm. True bone is rare. It was noted in only one of our cases, in the parotid gland.

Microscopically, extreme variations occur. The most common pattern is that of a growth in which groups of epithelial cells of polyhedral, stellate or spindle shape grow in a matrix of myxomatous, fibrous, or cartilage-like stroma and fade out and

fuse with the stroma (Figures 1 and 2). Tubule-like or gland-like structures or irregular aggregates of squamous epithelium may be seen. Spindle shaped epithelial cells may be separated by myxoid, fibrous or hyaline stroma forming a meshwork pattern, or may grow in strands or bands forming narrow or broad trabeculae. Occasionally very little stroma is seen and the tumors may be quite cellular. However, evidence of mitoses, anisocytosis and nuclear hyperchromatism associated with malignancy is not seen.

Thackray²⁰ studied by serial sections ten parotid glands containing mixed tumors and found occasional bulging of the capsule by outgrowth of tumor in small foci of such a nature that simply shelling out the tumor would result in leaving a small bit of tumor behind. Multiple sections of parotid tissue from which mixed tumors had been enucleated also showed portions of tumor left attached to a fibrous tissue capsule in several cases.

Papillary cystadenoma lymphomatosum (Warthin's tumor)—This interesting lesion, first described by Albrecht and Artz in 1910,³ has borne as a common name in this country "Warthin's tumor," after Warthin's report of two cases in America in 1929.²¹ These nodules are usually encapsulated, semi-fluctuant or partially cystic, and exude mucoid gray or brown fluid when cut. Clefts or collapsed cystic spaces are found in an opaque gray matrix resembling a faucial tonsil. Microscopically, there are varying sized collapsed spaces into which protrude blunt papillary processes covered by epithelium underneath which is abundant lymphoid tissue (Figure 3). The definitely oxyphilic epithelium is characteristically of two layers, the one nearest the lumen being tall columnar, with small round nuclei lying above the center of the cell nearest the lumen. The cells of the deeper layer are more poly-

hedral, less evenly arranged, with nuclei more vesicular than those of the cells lying on top of them. We have observed many areas in these tumors where the cells are piled up several or many layers thick. Rarely a suggestion of squamous metaplasia was encountered, especially in tumors of long duration in which atrophy of lymphoid tissue and blunting of papillae had occurred.

Oxyphil adenoma—These are rare tumors, sometimes called oncocytomas, composed of acidophilic cells somewhat resembling so-called Hurthle cells in thyroid tumors. They are usually soft, resilient, encapsulated tumors about 3 to 4 cm. across, commonly removed after a history of long duration. Only rarely does one see cyst formation but in one of our four cases there was a cyst occupying over half the sectioned surface. The surfaces made by sectioning usually show a tinge of brown or tan mixed with red or pink. Microscopically, the tumors are made of large cells with small round nuclei and abundant acidophilic cytoplasm which under high power is finely granular (Figure 4). They are characteristically arranged in columns, cords or small aggregates separated only by a very thin fibrous stroma containing small nutrient vessels. Malignant change has not been reported, but there are few cases of this type of adenoma in the literature. There was only one, in a total of 877 salivary gland tumors, included in Foote and Frazell's survey.⁷

Benign lymphoepithelial lesion—The term *benign lymphoepithelial lesion*, proposed by Godwin in 1952,¹⁰ is used for the lesion previously called by various names, including *solid adenolymphoma* and *lymphoductal tumor*, and which commonly in the past was erroneously diagnosed by pathologists as lymphosarcoma or lymphoma of some other type. Basically there is proliferation of lymphoid tissue in the gland involved, accompanied by proliferation

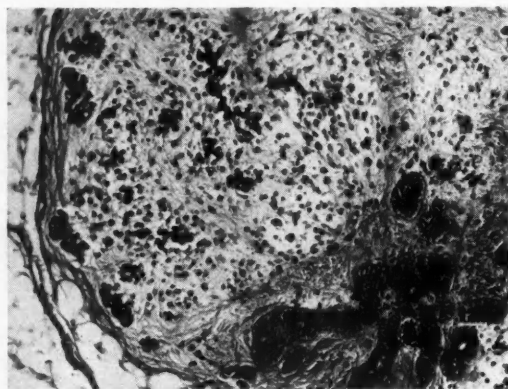


Figure 2.—Recurrent benign mixed tumor of parotid gland. Note abundant myxomatous stroma enmeshing small islands of small epithelial cells. Tubule formation at one edge (×125).

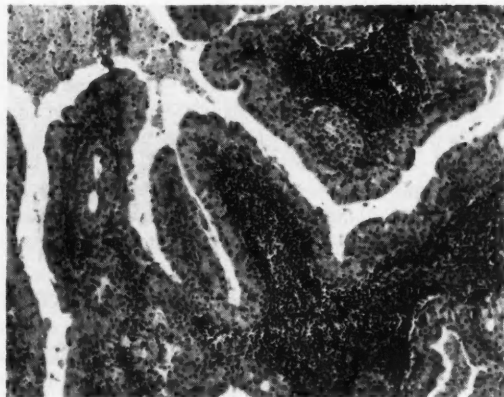


Figure 3.—Warthin's tumor. Note cleft into which protrude stalks covered by two layers of epithelium, overlying lymphoid tissue (×125).

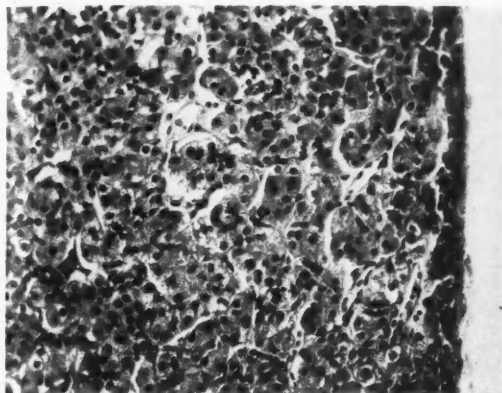


Figure 4.—Oxyphil adenoma. Small aggregates of oxyphil cells are packed together with little intervening stroma ($\times 250$).

of small or medium sized islands of epithelium (Figure 5) diffusely throughout the involved portion, which may be a small focus, a tumor-like localized lesion or nearly the entire salivary gland, replacing the salivary glandular tissue in the involved areas. The lymphoid and epithelial growth is orderly, and germinal center formation is usually present in the lymphoid tissue. The epithelial cell islands appear to have originated in ducts, growing as polygonal, cuboidal, or irregularly shaped cells showing poorly defined walls and even appearing sometimes much like a syncytium. Mitoses, anachromasia, and hyperchromatism, characteristically seen in malignant lesions, are absent.

Malignant Tumors

Malignant mixed tumor—Foote and Frazell^{7,8} and others include under this heading tumors meeting two requirements: "(1) that sections reveal areas having the structural qualities found in ordinary mixed tumors, and (2) that they contain areas of different structural makeup which by experience have been shown to be associated with metastases." In other words, to classify a neoplasm under this heading, one must find evidence of a mixed tumor pattern in some part of the tumor and evidence of carcinoma of some type in another. The former may necessitate preparation of many sections since the carcinoma may overgrow and replace the original mixed tumor almost completely. Special diligence in this regard on the part of Foote and his coworkers, to the extent of making 100 blocks in one case, partly explains why 57 out of the 551 mixed tumors they studied were found to be malignant. However, one must also take into consideration the fact that the patients seen by the Memorial Hospital group commonly have more advanced disease (including many seen with recurrent disease after surgical failure) than do patients observed by the average

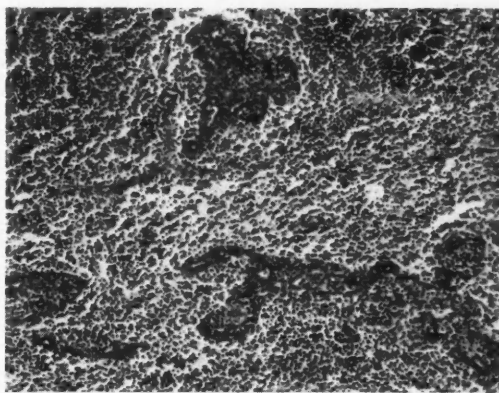


Figure 5.—Benign lymphoepithelial lesion. Lymphoid tissue replacing acinar tissue contains ducts in which proliferation of epithelium appears to fill lumens ($\times 150$).

surgeon in private practice. Ackerman¹ expressed the belief that malignant change occurs in less than 5 per cent of mixed tumors. Thackray²⁰ said 3 per cent. We noted malignant change in 6.2 per cent of such tumors.

On the whole, these tumors are larger than their benign counterparts. They are commonly fixed to the skin or surrounding soft tissues, and grossly may show evidence of peripheral infiltration. The presence of necrosis and hemorrhage in soft, mushy, friable areas is highly suggestive of malignant change. The histologic change is usually the production of atypical glands of adenocarcinoma, while in others squamous cell carcinoma develops. Rarely, spindle cell or giant cell carcinoma supervenes. In all of our cases the change was to adenocarcinoma. In one case in which a metastatic lesion developed in the lung the growth resembled the pattern of a mixed tumor and, in this, small foci of poorly differentiated carcinoma were seen (Figure 6).

Mucoepidermoid carcinoma—These tumors, so ably first described as a group entity in 1945 by Stewart, Foote and Becker,¹⁹ are ductal in origin. Low grade tumors are usually fairly well circumscribed and moderately firm, and about half of them are partially cystic. The cysts usually contain moderately viscid and thin mucinous fluid. Less cystic change is found in more malignant tumors of this group, and more infiltration of surrounding tissue is encountered. In sections of low grade tumors one sees gland-like or duct-like spaces lined by mucus-secreting cells (Figure 7) and sheets or masses of epidermoid cells, sometimes partially keratinized. Less differentiated, smaller polygonal intermediate cells, from which by differentiation the mucous and epidermoid cells are derived, are seen in all tumors of this variety; but in the high grade neoplasms extensive overgrowth of sheets and nests of these cells is encountered. Only by careful

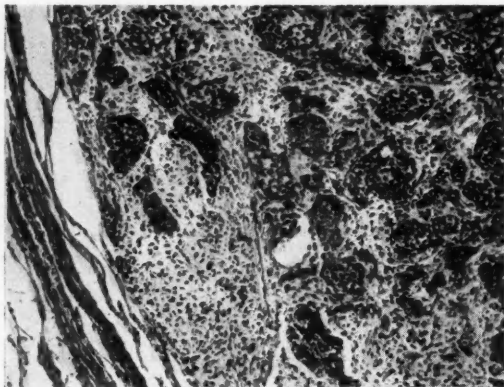


Figure 6.—Malignant mixed tumor, metastatic in lung. Loose stroma of mixed tumor type with varying sized islands of epithelium ($\times 125$).

study of multiple sections, employing routine sections and slides stained specifically for mucus, can one determine the true origin of these growths. In some cases overgrowth of squamous cells occurs to such a degree that the mucus-secreting component is nearly obscured, and in others overgrowth of the glandular pattern is present (Figure 8).

Adenocarcinoma (adenoid cystic)—This histologic entity, to which the term *cylindroma* was attached by Billroth about 100 years ago,⁵ can be found in major and minor salivary glands as well as in mucus-secreting glands of the nasopharynx, sinuses, pharynx, trachea, bronchi, skin and breast. Grossly, lesions of this order are rather firm, gray-white homogeneous neoplasms, devoid of myxomatous components, and they commonly show evidence of infiltration of surrounding tissue. Microscopically, one usually sees varying sized sheets or nests of small, deeply staining epithelial cells, with dark, round or ovoid nuclei and scanty cytoplasm. In

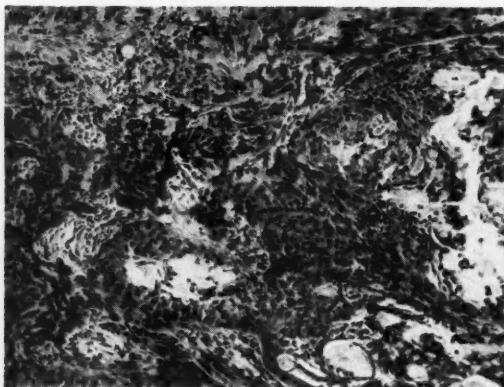


Figure 8.—Mucoepidermoid carcinoma, high grade. Note widespread proliferation of intermediate and poorly differentiated squamous cells. Goblet cells present in one duct-like structure ($\times 125$).

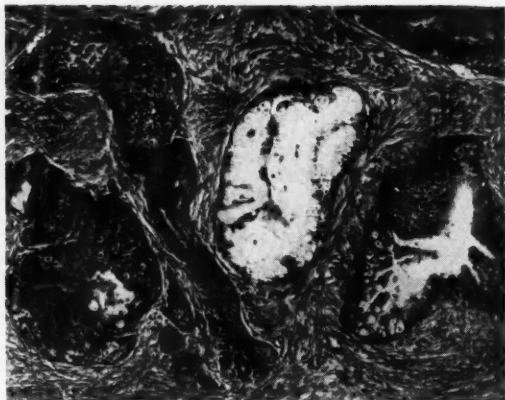


Figure 7.—Mucoepidermoid carcinoma, low grade. Central duct lined by mucus-filled cells. Other aggregates show squamous epithelium with some mucus-containing cells ($\times 125$).

these sheets one sees varying sized spaces which may be empty or may contain mucus, hyalin or mucohyaline material (Figure 9). Some aggregates of cells may have no spaces and grow as solid sheets. In some growths abundant hyalin is produced, and one may see only small remnants of compressed epithelial cells growing in strings between hyalin columns. Widespread invasion into soft tissues is the rule, and perineural lymphatics and even nerve fibers are commonly extensively infiltrated. Distant metastatic lesions, especially in the lungs, are to be expected if local disease is not controlled.

Adenocarcinoma (acinic cell)—All of the four cases of this kind of tumor in the present series, and those of Foote,⁷ 21 in all, occurred in the parotid. They are usually of low grade clinical malignancy, and histologically they have often been called benign adenomas. The pre-surgical clinical

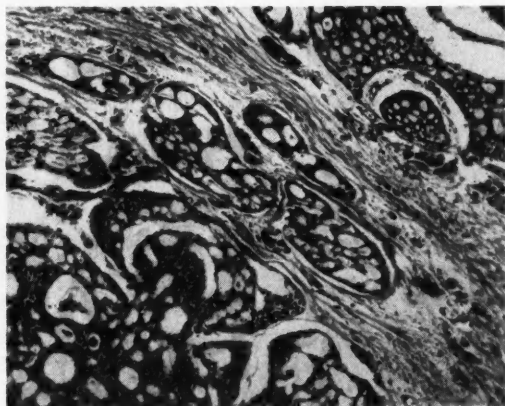


Figure 9.—Adenoid cystic carcinoma, ordinary pattern. Note varying sized aggregates of small epithelial cells in which are many small spaces, many empty ($\times 125$).

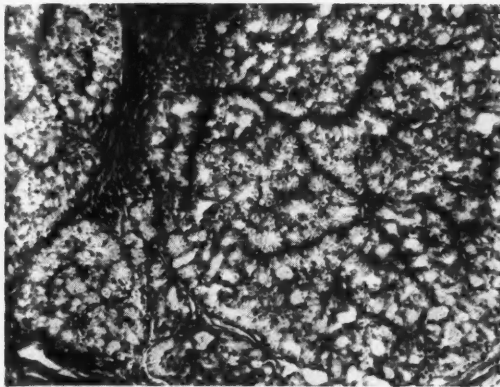


Figure 10.—Acinic cell carcinoma. Small gland-like spaces formed by “water clear” cells with small, dark, basally situated nuclei ($\times 125$).

history and the physical findings associated with them may be undistinguishable from those of benign mixed tumors. The tumors are usually encapsulated, gray-white, and often quite friable. Their microscopic pattern varies considerably, but usually one sees polygonal cells arranged in varying sized aggregates with little stroma, and formation of acini is present (Figure 10). The cells are about the size of parotid acinal cells; their nuclei are small, eccentrically and often basally situated. The cytoplasm varies from finely granular to water clear in appearance, and often in hematoxylin stains a bluish cast is present.

Adenocarcinoma—This group includes trabecular or solid adenocarcinomas in which epithelial cells grow in trabeculae or sheets without formation of glandular spaces. We have included also glandular cancers in which no residue of mixed tumor was seen in routine pathologic study. These are similar to adenocarcinomas of other organs.

Anaplastic carcinoma—We observed only one case of anaplastic carcinoma, composed of epithelial cells showing much variation in size and shape, and growing in no definite pattern.

MANAGEMENT

General—With regard to clinically distinguishing between benign and malignant lesions, we would like first of all to reemphasize the importance of the specific gland in which the tumor occurs, remembering the percentage of malignant disease reported for each gland. In addition, we have noted the following: (a) A relatively short history suggests malignancy. (b) Pain suggests cancer. (c) Large tumors suggest cancer. (d) In the case of parotid tumors, a slight weakness or complete paralysis of the facial nerve is almost pathognomonic of cancer. (As a corollary here, it is imperative in parotid

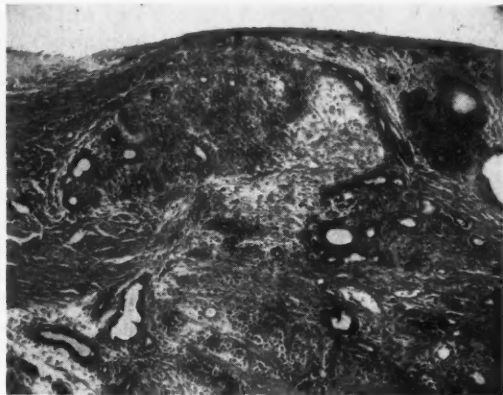


Figure 11.—Benign mixed tumor breaking through the “capsule.” A nodule of tumor is shown extending outside of the pseudo capsule ($\times 125$).

tumors to make a careful examination of each area from the forehead to the neck to determine if there is any slight facial weakness.) And (e) the presence of cervical metastasis is, of course, diagnostic of malignancy.

Parotid gland—In the parotid gland it was the senior author's usual method in the past to explore the parotid area through a small incision over the tumor mass, with excision of the mass and a margin of normal salivary tissue about it. In the larger and more deeply placed tumors it was necessary to dissect out the seventh nerve—usually beginning with one of the smaller branches and working back, finding the larger branches, and then removing the gland superficial to the nerve itself.

More recently we have adopted the “Y” shape of exposure^{11,12} with mobilization of the external auditory canal, finding the nerve as it comes out of the stylomastoid foramen, following the main trunk forward and dissecting the gland off the nerve with the tumor mass enclosed in the gland. At times it is necessary to remove the tumor from beneath the nerve, or from the deep lobe behind the ramus of the mandible. In these cases it is mandatory to identify the nerve and all its branches.

The practice of enucleation of parotid tumors should be mentioned only to be condemned, for no matter which way the nerve is identified and isolated, the tumor itself in all cases must be removed with a sufficient amount of normal parotid tissue on all sides wherever possible. As has been brought out by many observers,* most tumors of the parotid and submaxillary glands, while appearing to have a definite capsule, actually are not encapsulated (Figure 11). The anatomical capsule merely represents condensed normal salivary gland tissue. There are numerous small extensions of the tumor beyond this

*References 1, 4, 6-9, 11, 12, 16, 17, 20.

capsule, so that if the tumor is removed within the capsule there will remain, as has been shown on serial sections,^{16,20} small fragments of tumor scattered throughout the edge of the excision (Figure 12). These will recur and appear to be multiple seedings of the tumor.

We have followed the principle of obtaining a frozen section in all cases, and should the diagnosis be malignant we usually do an immediate neck dissection, except as noted below. In the past we often did an upper neck dissection in the lower grade malignant lesions, but now we feel that a complete neck dissection is preferable. However, in these cases (acinic cell and low grade mucoepidermoid adenocarcinomas) it may be deferred until metastatic lesions in the neck are evident. In the high grade lesions, on the other hand, an immediate and complete neck dissection should be carried out in all cases.

Of the 29 patients with parotid gland cancer who were observed for five years or more, 22 were living without evidence of disease.

Submaxillary gland—In the submaxillary gland the higher incidence of malignant disease, as shown by our percentages, should alert surgeons to be prepared for neck dissection if necessary at the time of operation. Our usual method is to use a long, curving incision overlying the gland. It has been our practice to preserve the ramus mandibularis of the seventh nerve unless it is found to be invaded by tumor. In that case we would not hesitate to sacrifice it. The gland is removed with a wide margin of normal tissue and submitted to the pathologist. If an immediate diagnosis of malignant disease is obtained, radical neck dissection is performed, with sacrifice of the adjacent musculature to the submaxillary gland.

In the past we have not been able to carry this out in all instances. However, in two cases in which there was definite cancer found, with subsequent recurrence, both were controlled by neck dissection at the time of recurrence. There have been no recurrences of benign tumors in this gland. Of the three patients with malignant submaxillary tumors observed five years or longer, two were living without evidence of disease.

Minor salivary gland—Minor salivary gland tumors are seen in all areas of the oral cavity, and wide local excision with adequate margin is carried out. If the tumor is malignant and bone is involved, especially of the lower jaw, it is usually recommended that the patient have excision of the intra-oral primary tumor in continuity with resection of the mandible and a radical neck dissection, in order to control the disease. When the malignant tumor is in the upper jaw, radical maxillectomy with preservation of the orbit is frequently nec-



Figure 12.—Residual benign mixed tumor after enucleation. A benign mixed tumor was removed by enucleation; the surgeon then thought better of it and did superficial parotidectomy. Section shows the bed from which the enucleation had been done, with numerous areas of residual mixed tumor ($\times 125$).

essary, neck dissection being reserved for patients in whom metastatic lesions are clinically manifest by enlargement of the lymph nodes.

Of the 12 patients with minor salivary gland cancer who were observed five years or more, eight were living free of disease when last examined.

The Place of Ionizing Radiation in the Control of Salivary Gland Tumors

While the treatment of both benign and malignant tumors of the salivary glands is primarily surgical, there are reports² of good results, particularly in the malignant group, by various forms of radiotherapy. In our series several of these methods were used, but all of them as adjuncts to primary surgical excision. Of particular value was the application of gold-filtered radon seeds or radium needles. In cases in which margins were narrow or excision could not be completed, these methods were employed, usually calculated to give about 5,000 to 5,500 r to the area in question. Also, in cases where the capsule was broken during excision, interstitial radiation was used to sterilize the surgical field. In addition, we have combined external and interstitial radiation in some cases with good results. These various methods have been of definite benefit in improving the overall control and survival rate.

THE SEVENTH NERVE

In operations in the parotid area the hazard to the seventh cranial nerve is considerable, and although rather good fortune attended the initial phase of this series in those patients in whom the seventh nerve was not primarily identified, it is now generally felt that immediate identification and careful preservation of all its ramifications is essen-

tial in the treatment of these tumors. The seventh nerve should only be sacrificed in the case of malignant tumors where sacrifice is absolutely necessary in order to gain adequate margin to assure complete removal of the tumor, or where the nerve is actually invaded by tumor.

The patients with parotid tumors were divided into two chronological groups in order to study the comparative incidence and duration of paralysis following the two methods of operation, the initial group having been treated by the older method and the later group by the procedure in which the nerve is deliberately identified as it comes from the stylomastoid foramen and carefully followed. In the earlier group there was a 30 per cent incidence of paralysis, in which only two of the thirteen patients had return of function after a long period of palsy. In the later group, on the other hand, there was a 20 per cent incidence of paralysis and in every case it was only temporary. The earliest return of function was in one month and the latest in 18 months, the average for the group being 8.1 months. All of these patients showed earlier indication of returning function, but the data given are for complete function in every case.

A series was previously reported by the junior author¹³⁻¹⁵ in which the nerve was intentionally sacrificed in 40 patients, 28 of whom were available for follow-up observation. One-fourth of these patients were noted to have return of function following resection of a segment of the 7th cranial nerve. Two of these patients had subsequent local excision of recurrent tumor in the parotid bed. Both had retention of function, following the repeated operation, to areas where there was any possibility for regrowth of nerve.

It was conjectured that this return of function was the result of a transference of motor fibers from the seventh to the fifth nerve. This conjecture is supported anatomically by the myriad plexi which exist between the fifth and seventh nerves, and clinically by a recent observation in one of the original patients.¹⁵ This patient had return of function following resection of a segment of the seventh nerve. Later she had a recurrence of disease and underwent resection of the entire area, down to and including the periosteum of the mandible. The patient did well, with no diminution of function. However, trigeminal neuralgia subsequently developed and she was examined by a neurosurgeon. She then had an alcohol injection of the trigeminal nerve with subsequent loss of seventh nerve function and complete paralysis of the involved side of the face.

Returning to the statistics in the present series, the two patients in the early group mentioned above as having return of function (in whom the main nerve trunk undoubtedly was sacrificed, for both

patients had malignant disease) would fall into this category, and probably represent a spontaneous return of function carried by the fifth nerve. Suffice to say that, should it become necessary in some patients to remove the seventh nerve, we are now able to state that without nerve graft or any other reparative procedure, at least 25 per cent will regain function.

The Pasadena Tumor Institute, 635 East Union Street, Pasadena (Helsper).

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Psychiatric Units in General Hospitals

Problems in Development and Efficient Operation

A. E. BENNETT, M.D., Berkeley

THE PRACTICE of psychiatry in general hospitals began only about 35 years ago. At that time only a very few hospitals had psychiatric departments. Gradually the idea spread in the mid-West and East. By 1952, according to a survey made by the author and coworkers, of the 1600 larger hospitals in the United States, 205 had fairly adequate units of 15 beds or more, but only 129 of them were non-governmental hospitals. Some general hospitals would admit a psychiatric patient briefly for emergency treatment or diagnosis, but at least half of the hospitals included in the survey did not admit a patient known to have a psychiatric disorder. We estimated that only about 20,000 of a total of 574,638 general hospital beds were available for psychiatric patient care—or about a third of the 60,000 beds considered a minimum need.

A book, "The Practice of Psychiatry in General Hospitals,"¹ contains the responses to the survey and to various articles on the topic. The book deals with the major problems connected with setting up and operating psychiatric departments. The study convinced me that every general hospital should offer some kind of psychiatric service. Adequate psychiatric facilities within general hospitals would attain the following results: (1) Shorten hospitalization and improve the quality of recovery; (2) prevent needless diagnostic and treatment expenses, on the basis that at least a fourth of all general hospital patients have psychiatric problems; (3) relieve state hospital overcrowding; and (4) improve public satisfaction with medicine and with hospitals and thus improve the general community health.

Since the already mentioned preliminary survey, the number of psychiatric units in general hospitals has expanded greatly. There are now more than 600. Patients previously excluded from general hospitals because of mental illness, alcoholism or drug addiction are being admitted in increasing numbers.

The organization and operation of such units present many special problems, some of which may be unfamiliar to administrators, psychiatrists or

• An adequate 25-bed psychiatric unit can be housed in a wing of a general hospital. Even more important than physical facilities are competent personnel, to be headed by a chief psychiatrist and a psychiatric nurse supervisor, for the unit. Incorporating teaching facilities into the unit helps to integrate psychiatry into the other disciplines of medicine in a continuing educational program.

Having psychiatric units in general hospitals enables many voluntary patients to be treated in early stages of the disorder, with a high proportion of recoveries.

Medicolegal aspects and the lack of adequate coverage of mental disorders by voluntary prepayment health plans are serious problems in the economy of a unit. Improved hospital administration, expanded training programs, educational work by local mental health societies and modification of laws on malpractice and commitment will go far to help solve these problems.

other medical personnel who have not had first hand experience in these departments.²

Planning and Staffing

Architectural and technical details are well covered in several excellent books and U. S. Public Health Service pamphlets. Personal experience permits me to say that an adequate 25-bed psychiatric department can be housed in an ordinary hospital wing, without prohibitive cost for remodeling. Sections for men and women need not be separate. Semiprivate rooms and small wards are better than private rooms; they facilitate group adjustments. Some space is essential for day rooms and for dining, occupational and recreational areas. Also needed are special interview, treatment, nursing and utility rooms. Soundproof, air-conditioned seclusion rooms are usually needed in a ratio of one for about every 20 patients. A combination of open and closed departments, with areas for daytime patients, is an ideal arrangement. A 25-bed department headed by a psychiatric nurse supervisor can function with such minimum personnel as one graduate psychiatric nurse, an assistant nurse or two senior student nurses, and two aides (a male and a female) for each 8-hour shift. Other needed personnel include an occupational and recreational therapist and, part-time a clinical psychologist and a psychiatric social

¹Read before the Santa Clara-Monterey County Psychiatric Society, January 21, 1960.

²From the Department of Psychiatry, Herrick Memorial Hospital, Berkeley 4.

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worker. It is of great help to the psychiatrists who treat the patients to have the services of two psychiatric residents and one intern who can receive their graduate training in an accredited department.

In planning a psychiatric unit in a general hospital, it is extremely important to convince hospital administrators of the desirability and value of such a department. Some administrators believe that disturbed patients pose hazards of suicidal and homicidal behavior, or at least may be too noisy. Others object to the possibility of the long term use of beds for patients found to need protracted care or observation. Some believe that psychiatric departments will not pay their way. However, the great majority of administrators with any experience with these departments stress their great advantages.

Increasing appreciation of the role of emotional factors in many diseases has made the general hospital the proper, necessary place in which to teach psychiatry and conduct research. Here medical students, young physicians and nurses see psychiatry in its proper perspective and learn the importance of emotions causing or contributing to many illnesses besides the frank psychoneurotic or psychotic disorders.

Plans for Teaching Facilities in Psychiatric Units

A series of seminars should be held by the psychiatric staff to explain psychiatric methods to the nonpsychiatric administrative, medical and nursing staff. These discussions should center on such matters as rules of the department, types of patients to be admitted, methods of admission and voluntary admissions. Treatment methods for psychiatric patients requiring care in closed wards should be distinguished from the methods needed for patients having psychosomatic disorders. The management of suicidal patients should be explained, as should the occasional advisability of transferring from other departments patients with organic disease who show mental symptoms—for example a surgical patient who becomes delirious. The psychiatric nurse should take up the importance of correct charting of behavior and the various methods of psychiatric nursing. The hospital resident and intern staff should be instructed in the technique of interviewing not only patients but relatives. Considerable discussion of the problem of dealing with relatives and visitors in the department should be carried out. A manual regarding rules of the department, elementary aspects of mental illness and procedures in treatment should be given to relatives to help alleviate their concern.

A library to which physicians and nurses can refer concerning psychiatric problems is an important aid in the teaching program. Selected lists of pamphlets approved by the National Committee of

Mental Hygiene and the reports of the Group for Advancement of Psychiatry should be incorporated in the library section. A separate library for patients has proved to be a very valuable aid in therapy, and special books are often prescribed by the attending psychiatrist according to the individual needs of the patient.

After the department is organized and functioning, regular weekly seminars should be continued by various attending physicians to discuss histories, diagnoses, nursing problems and special therapies. These seminars are attended by nurses, interns and residents. Monthly departmental meetings of the active staff to discuss problems that arise are mandatory. Special staff clinics should include various psychiatric problems to help orient the nonpsychiatric practitioner and show the value of psychiatric therapy. In short, all means possible should be employed to integrate psychiatry into the other disciplines of medicine in a continuous educational program.

The Staff

The most important step in establishing a department is to obtain competent psychiatric personnel. First, a chief psychiatrist or organizing committee, preferably with general hospital experience, should be given the responsibility of organizing the professional and nursing staff and integrating the unit within the general hospital.

No practitioner who is not fully qualified by training should be permitted to care for psychiatric patients. Board eligibility or certification in psychiatry is the usual criterion for staff membership. Rules and regulations, uniform and strictly adhered to, must include all nursing problems. They make the nurses' work interesting, instructive and efficient.

Physicians in other departments should have access to the unit, in order to treat patients with delirium and complicating medical and surgical diseases, but patients whose disease is entirely psychiatric should be referred to the psychiatrist. The problem of visitors is an important one. We have found from experience that as a rule patients should have visitors only by special permission of the psychiatrist in attendance. Often the influence of visitors leads to dissatisfaction of the patient and to premature dismissal, or raises other problems that interfere with adequate therapy.

Therapy

One of the advantages of having psychiatric units in general hospitals is that patients come in voluntarily for early treatment in the acute stage of a disorder. Treatment at this stage tends to prevent chronicity, and 80 per cent of patients are returned to the community within a few weeks. Most persons,

given a choice, would rather have swift, early treatment for psychiatric disabilities in general hospitals, than the often difficult procedure of commitment to a state hospital.

As soon as psychiatric units are established in general hospitals, the incidence of consultations between other specialties in medicine and psychiatry goes up, which greatly helps the integration of psychiatry with other departments in the hospital. The biggest problem, that of overcoming prejudice against mental illness, requires education of a board of directors, of the medical staff and of the general public. Acceptance of psychiatry in general hospitals is one of the most valuable means of overcoming misconceptions and prejudices about mental illness.

Conditions found to be favorable to treatment in general hospitals include the severe neuroses, the psychosomatic disorders, all the toxic psychoses, acute major breakdowns such as depressions and excitements, alcoholism and drug addictions. The gravest problems in treatment are the schizophrenic patients. Patients with acute schizo-affective disorders can usually be straightened out in a few weeks' treatment, but those with more chronic types usually have to be transferred to the state hospitals.

At present we hear much about the concept of the therapeutic community or the open hospital, a concept that will grow. The major trends are for more and more open hospitals or therapeutic communities, which in turn create the need for greatly increased community rehabilitation services. Klapper's³ list of 23 rehabilitation centers that admit ex-mental patients includes Herrick Memorial Hospital, in Berkeley. These patients, who make up about 2 per cent of the entire load, come from our 46-bed psychiatric unit and outpatient clinic; eventually the two will be coordinated. This trend means an increased, closer relationship of the general hospital with the community. The need is for integration of the general hospital as the true community hospital, and direction of the total program in the interest of the whole person, regardless of his type of illness.

A.M.A. Council Recommendations

The recent conference of mental health representatives of the state medical associations sponsored by the American Medical Association's Council on Mental Health agreed on these recommendations:

1. All new construction should provide community mental health centers and general hospital facilities for the psychiatric patients—not large public mental hospitals.

2. State medical societies should be encouraged to study ways to close the gap between organized medicine and the public mental hospital.

3. Private psychiatric hospitals should encourage

staff relationships similar to those in general hospitals.

4. The psychiatric units of the general hospitals should function in terms of community needs and provide effective treatment for psychiatric emergencies.

5. Members of the staff of outpatient psychiatric clinics should improve their relationship with other physicians, especially with the referring physician.

6. The community must share in the responsibility of accepting the well patient back into its social life.

7. Mental health committees of state medical societies should set up widely representative groups to study the Uniform Mental Health Act as a basis for preparing a mental health bill acceptable to the state. The state medical societies should take up the problem and make recommendations.

Problems in Adequate Functioning of a Department

A few departments established in various parts of the United States have been abandoned after some months or years of operation. In general, the reasons have been problems in economics, medicolegal problems and poor communication between psychiatry and the general medical staff and administrative boards of the hospitals.²

Most of these problems can be solved by anticipating them: A special committee made up of representatives of the psychiatric staff, the nursing staff and the administrative staff of the hospital should be responsible for the necessary rules and regulations for the department's operation. In some instances, legal opinions concerning certain legal responsibilities of the hospital and general management of the department may be needed.

Medicolegal Problems

Malpractice problems are a most serious deterrent to the organization of psychiatric units in general hospitals. Far too many unjustified suits have been brought against psychiatrists in recent years. This problem seriously affects all medical practice. In one instance, a San Francisco hospital, because of legal opinions concerning potential malpractice problems, abandoned a plan that had been worked out for a psychiatric unit and otherwise approved. Accidents to psychiatric patients under treatment do constitute a risk. A paranoid patient, for example, can almost always find a way to start suit against a physician or a hospital. The American Psychiatric Association's standing committee on private practice should study this problem and cooperate with the parallel committee of the American Medical Association to obtain adequate legal protection. Many unjustified suits are settled out of court by insurance companies to avoid the expenses of trial.

Interpretations of the doctrine of *res ipsa loquitur* in California courts have so perverted the law that virtually the burden rests not upon the plaintiff to prove malpractice but upon the defendant physician to prove he acted competently.

Health Insurance

A further deterrent to successful operation of a psychiatric unit in general hospitals is the discrimination against psychiatric treatment by many Blue Shield and Blue Cross voluntary prepayment health insurance plans. Without uniform coverage through the voluntary prepayment insurance plan for all patients sick enough to require treatment in an accredited hospital, the increasing costs of psychiatric treatment will hamper the development of these units in general hospitals. Families have to make severe financial sacrifices to keep patients under treatment, even though the average stay is less than 30 days. Definite improvement has taken place in that 77 per cent of Blue Cross and Blue Shield plans throughout the country at the present time give some psychiatric coverage. However, Blue Shield plans in California still provide no such coverage. On the other hand, the successful Cleveland plan, probably the most progressive in the country, for 20 years has included psychiatric treatment without increasing the cost to the insured.⁵

In New York a two-year experimental program, Group Health Insurance, Inc., jointly sponsored by the National Association for Mental Health and the American Psychiatric Association, has a sample group of 75,000 persons who will be eligible for mental health coverage without increased premiums.⁷ Actuarial data will be compiled. Weil stated that it is actuarially possible to include short-term hospitalization for mental illness with a 2 or 3 per cent increase in premiums.⁶

It must be pointed out to insurance companies again and again that they already pay for many episodes of mental illness under subterfuge diagnoses; and we must help mental health organizations, industrial unions and other lay groups to bring about a public demand for the inclusion of mental illness in the prepayment voluntary health insurance plans.

Changes Needed for Future Development of General Hospital Psychiatry

Mental hygiene societies should take steps to educate communities to understand mental illness and the local needs for treatment. All hospitals should be urged to admit mental patients if only for diagnosis, consultation and transfer, without prejudice.

The larger hospitals should incorporate psychiatric departments.

Expansion of training programs for residents, interns, nurses and vocational aides is a great need because of the tremendous shortage of professional personnel. Psychiatric experience should be a requirement of all internships.

Hospital administrators must learn to interpret the needs and values of psychiatric treatment and overcome existing medical prejudices. Administrators should help solve economic problems by obtaining effective, comprehensive prepayment health insurance, and should advocate measures to expedite early hospital treatment, with easy transfer to and from public hospitals, without court procedure.

Future psychiatric units must include open units in the architectural planning. The use of colors and modern furnishings provides cheerful environments, with no resemblances to a prison. The enlistment of volunteer workers, and such auxiliary workers as Alcoholics Anonymous, the incorporation of group therapy wherever practical and the use of a plan under which selected patients may go to the hospital during the day but return home each night, go a long way toward solving the financial problem. The development of an outpatient clinic to work with the inpatient department and the greater use of outpatient treatment facilities for cooperative patients serve to cut down the extreme costs of hospitalization. Future departments will have to pay more attention to the geriatric problems of the aging population. Too many of the elderly patients have been considered hopeless seniles, whereas many of them have toxic delirious reactions or affective disorders that respond promptly to treatment.

2000 Dwight Way, Berkeley 4.

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Psychiatric Inpatient Services in General Hospitals

PORTIA BELL HUME, M.D., Berkeley, and
EDWARD RUDIN, M.D., Sacramento

THE POINT OF VIEW of the authors of this paper takes into account the history of psychiatric hospitals, the present state of psychiatric beds of all kinds and locations, the wide gap between needs and resources, and the fact that the quality of services is just as important as the quantity in setting goals, in planning programs and in developing psychiatric inpatient facilities.

The traditional asylum care of psychiatric patients arose from the need to isolate the patient in order to protect society (if not the patient), and to alleviate for the family the social stigma of mental illness. The location of mental hospitals remote from inhabited areas, confinement of patients, physical restraint and the disruption of social and family ties were all assumed to be necessary. Even "non-restraint" meant restraint by attendants or by means of drugs, and, although therapeutic goals were benignly conceived, treatment that amounted to punishment of the patient was commonly practiced. Although punitive attitudes toward mentally ill patients have changed periodically, depending upon economic, religious, political and cultural determinants, the practice of isolating most psychiatric patients and the assumption that they are incompetent have continued. The physical isolation of the patient was accomplished through location of the asylums in remote geographic areas and through security measures. The moral isolation of the asylum inmates was achieved through legal commitments and a formal legal statement of the incompetence that was assumed to be present. A third kind of isolation inevitably occurred as a consequence, and that was the separation of the care of the "insane" from the care of patients with less dismaying kinds of illnesses generally recognized as necessitating medical services, in or out of a true hospital. In short, customs, traditions, laws, institutional practices, and big investments of tax money all combined to isolate, until very recently, the practice of psychiatry from the rest of medicine. Throughout the United States, over 97.5 per cent of psychiatric beds

• Traditional asylum care of psychiatric patients leads to the isolation, confinement, and restraint of the patients, and to isolation of psychiatric practice from the rest of medicine. Modern psychiatric advances have demonstrated the disadvantages to both patients and their families of such isolation, confinement and restraint. It is in the best interests of patients and professional workers that inpatient psychiatric services be continuous with, and contiguous to, other medical services and to rehabilitation services of all kinds.

Examination of currently available information reveals a shortage of psychiatric beds in California, particularly for diagnosis and brief treatment. Thus, not only is there a need to develop psychiatric inpatient facilities, but also an opportunity to develop them along several different lines. Since both the Hill-Burton Act (federal) and the Short-Doyle Act (state) give financial assistance to only those psychiatric services established in general hospitals or affiliated with general hospitals, this requirement calls for examination in the light of experience with services so operated.

At first, the Short-Doyle Act was perceived as a panacea for the psychiatric ills of the state. Now it is beginning to be recognized as one method of providing additional mental health resources, rather than the exclusive method. As more short-term cases are treated in local, tax-supported, psychiatric units in general hospitals, an impact can be expected on the state hospital program.

In its administration of the Short-Doyle Act, the Department of Mental Hygiene attempts to respond to community needs as locally determined. It tries to insure local option and encourage local responsibility while furthering high standards of staffing and of service.

are in state hospitals. Here in California, however, only 76 per cent of the psychiatric beds are in state hospitals. Fifteen per cent are in private facilities, the largest proportion among all the states. On June 30, 1958, there were 8,600 beds (for both long-term and short-term psychiatric care) in private hospitals, sanatoria and nursing homes licensed by the State Department of Mental Hygiene, as compared with 42,800 beds in state hospitals, 4,200 beds in Veterans Administration hospitals, and 700 beds in general hospitals.¹

The State Department of Public Health has responsibility for administering the Hill-Burton funds, which match federal and state money with local

Read at the annual meeting of the California Hospital Association, October 22, 1959.

Dr. Hume is the Deputy Medical Director for Community Services and Dr. Rudin is the Chief of State-Local Mental Health Services, both in the State Department of Mental Hygiene.

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money, for the construction of facilities for psychiatric beds in general hospitals. The local funds may come from public or private sources. According to the standards established for the allocation of Hill-Burton funds for psychiatric units in general hospitals, or in specialized psychiatric hospitals affiliated with general hospitals, the gaps between needs and resources for short-term psychiatric cases is enormous. As of June 30, 1958 (when the state population was 14,025,000), instead of the 7,216 short-term beds required by the standard adopted here in California, only 2,728 beds (or 38 per cent of the standard) were available. In this count were included the psychiatric beds for holding patients pending commitment, but not the psychiatric beds in general hospitals if the unit consisted of less than ten beds.

SHORTAGE OF PSYCHIATRIC BEDS

As of the same June 30, 1958, California was lacking at least 4,900 long-term beds and about 4,500 short-term beds, or a total of about 9,400 psychiatric beds, according to the standards under which the Hill-Burton Act is administered in California. Although we may seriously question the basis of the Hill-Burton standards, it appears that the present count of psychiatric beds for short-term treatment indicates a significant shortage. In the presence of an obvious scarcity of psychiatric beds, particularly for diagnosis and brief treatment, there would appear to be need and opportunity for developments along several different lines: not only for separate psychiatric facilities, but also for psychiatric units in general hospitals; not only for psychiatric beds accommodating adults, but also beds for children and adolescents; not only for 24-hour care, but also for "day-care" hospitals and "night-care" hospitals.

In consideration of the quality, rather than the quantity, of psychiatric inpatient services, certain criteria are equally applicable to specialized psychiatric hospitals and to psychiatric units in general hospitals. Many of these criteria are met by both the specialized hospital and the unit in a general hospital. Why, then, do both the Hill-Burton program and the Short-Doyle Act provide financial aid only to psychiatric services in general hospitals or to specialized psychiatric facilities which are affiliated with general hospitals? Recent trends in psychiatry, together with the authors' experience with the Short-Doyle Act since January 1, 1958, may offer some explanation, although the authors believe that there are several ways, rather than only one way, to develop good hospital facilities for psychiatric patients of all kinds, in all age-groups, from all walks of life, and within a reasonable distance from their homes.

New Trends in Psychiatry

Modern psychiatric advances have demonstrated the disadvantages of isolation and confinement. Recent studies have even suggested that such isolation tends to exaggerate flights from reality and promote anti-social behavior. Estrangement from family and society is now seen as impairing recovery, except in certain unique situations, and even then, generally, estrangement is useful for brief periods only. Certainly, the assumption that the patient cannot take any responsibility for his own recovery has been found to be both false and undesirable in promoting the patient's treatment. Developments in psychopharmacology have permitted those who nurse and treat the psychiatric patient to feel more confidence in the patient and more hopeful about his progress. The behavior of a disturbed psychiatric patient is now more easily, more subtly and less harshly controlled. Consequently, staffs are now able to look at the patient rather than at his problem behavior.

Developments in child guidance and in the private practice of psychiatry have reinforced the professional recognition that the psychiatric patient is responsive to the environment in which he lives and that this environment may either facilitate recovery or intensify illness. Thus, it has become evident that management of the psychiatric patient must often include guidance of the key figures in his natural environment. Wartime experience demonstrated that psychosomatic medicine, in a broader sense, referred to all of medicine, not to just a few physical disorders with more obvious psychogenic features. In this broader sense, medical conditions were seen to have psychiatric overtones and implications, and psychiatric conditions were seen to result from, and to induce, morphologic and physiologic changes in the nervous system and in other systems of the human body. The advantages to physicians and to patients of having ready interchange between non-psychiatric and psychiatric physicians were repeatedly demonstrated.

The pronounced increase in the number of psychiatrists in private practice (nearly 1,100 now in California) has stimulated the need for psychiatric beds in the communities where patients and their psychiatrists live. Economic factors have often supported the desire to set aside psychiatric beds in general hospitals. But these factors and the medical reasons for promoting locally available psychiatric beds have conflicted with the traditional fears about "wild" psychiatric patients, with major investments in psychiatric institutions separate from general medical facilities, with the chronicity of many mental illnesses, with shortages of psychiatrically-trained nursing and other personnel, and with the failure of pre-payment plans to provide coverage for psychiatric disabilities.²

TABLE 1.—Inpatient Service Costs Under Short-Doyle Act, 1958-59

County	Population	Number of Psychiatric Beds	Estimated Cost of Inpatient Operation	Estimated Cost Per Bed Per Year	Per Cent of Cost of Local Program Going to Inpatient Service
San Francisco.....	791,100	59	\$ 683,185	\$11,579	68
San Mateo.....	399,100	30	207,597	6,920	37
Contra Costa.....	370,400	27	128,895	4,774	76
San Joaquin.....	241,000	32	245,502	7,672	84
Monterey (1959 only).....	192,200	15	97,388	6,493	61
Total.....		163	\$1,362,567		

Experience with the Short-Doyle Act

The Short-Doyle Act for Community Mental Health Services, passed by the 1957 session of the California State Legislature, accepted the principles that a psychiatric patient should be treated as close to his living situation as was feasible, and in as close a relationship as possible to the source of the rest of his medical services. The legislation also established two conditions which had the effect of contributing to the assurance that the patient would take some responsibility for his own condition: the requirements that the patient voluntarily seek such treatment, and that he pay a fee consistent with his ability to do so.

In the first full year of operation of the Short-Doyle Act, eleven county programs and one city program were approved. Of these, five were approved for inpatient services. These provided a total of 163 beds for voluntary psychiatric patients. All were located in county general hospitals. Since one of these mental health programs was administratively part of the public health department, the inpatient service was provided in this community by agreement with the county hospital. It was this same program which also planned the smallest approved inpatient service (15 beds), but not because of any minimum size requirements established by the state. It was also this same program which, due to the failure to find a suitable psychiatrist to direct the inpatient unit, did not implement its plan for inpatient services.

The costs of operating inpatient services have varied, reflecting not only the size of the population served, the types of patients admitted and the program emphasis, but also the orientation of the service offered. For example, in Contra Costa County the program provided 27 beds at a cost of \$4,774 per bed per year, but the service consisted almost entirely of hospital care and observation without specific psychiatric treatment. In comparison, the San Joaquin County and the San Mateo County programs (of comparable size) provided active treatment with drugs, psychotherapy and planned activity at a cost, respectively, of \$7,672 and \$6,920 per bed per year. Since capital expenditures are not reimbursed under the Short-Doyle Act, the cost

figures available cover operating expenses only (Table 1).

The average estimated operating cost of each bed is \$8,360 per year, but in Contra Costa County, with just less than the average number of beds, the cost was only \$4,774, while in San Francisco, with twice the average number of beds, the cost was \$11,579.

Distribution of Inpatients

From July 1 to December 31, 1958, there were only 148 beds in actual operation. (Monterey County was unable to implement its inpatient service plan during this time.) During this six-month period, 3 per cent of the patients discharged were under 18 years of age, 46 per cent were from 18 to 39 inclusive, 42 per cent were from 40 to 64 and 9 per cent were 65 years old or older. Acute brain disorders were diagnosed in 39 per cent of adult patients (18 years of age and over), psychoses in 31 per cent, personality disorders in 15 per cent, psychoneuroses in 12 per cent, and transient situational disorders in 1 per cent. The acute brain disorders included acute alcoholic intoxications if no other psychiatric diagnosis was given these patients. Chronic brain disorders, mental deficiency, and psychosomatic disorders were all represented, but together totaled only 1 per cent. Also, in 1 per cent of the cases no diagnosis was made or there was no mental disorder.

Incomplete reports of the operation of the first four inpatient services (Table 1) indicated that well over 800 patients were hospitalized in these facilities from July 1 through December 31, 1958. The median length of stay in hospital of the discharged patients varied from five days in San Mateo to 30.5 days in San Francisco.

Of the total of \$2,560,879 budgeted the first year by local communities for reimbursable mental health programs, just over 53 per cent was allocated to inpatient services. This represented the provision of inpatient services in communities with a total population of 1,693,800 or 12 per cent of the state's population. The 148 beds that were actually operated with Short-Doyle Act reimbursement were expected to cost \$1,265,179, half of which was to be reimbursed by the state. The average total estimated cost per bed day was thus estimated at \$23.42.

Values to Be Considered

The local availability of inpatient facilities should promote a continuity of care for the psychiatric patient, the absence of which has long been a serious problem significantly affecting the prognosis of such patients. As psychiatric inpatient care becomes at least as available as outpatient psychiatric care, it can be anticipated that a person in whom a psychiatric disorder develops will seek outpatient care first and will be treated on an ambulatory basis as far as possible. However, when in the course of his outpatient care, or at the time of an initial evaluation of the patient, it becomes clear that admittance to hospital is indicated, the patient should then have access to hospital care, if possible, under the continued medical management of the psychiatrist who provided for the outpatient care.

If the continuity of the single professional person is not possible, then the person responsible for the outpatient care should have the freedom to visit the patient and to participate in a consultative way in the inpatient care of the patient when care in hospital becomes necessary. It is then possible for the patient's return from the hospital to community to be planned and anticipated by his family, his society and his physician from the very moment of his admission to the hospital. Thus, the posthospital career of the patient would be part of the continuum of his prehospital and intrahospital care. If special non-medical facilities are needed in a community to promote a patient's recovery and his discharge from a hospital, the very fact that the patient is being cared for in a hospital in the same community in which he will be living when his stay in hospital ends, permits the community to be more convincingly informed of the patient's rehabilitation needs.

The Short-Doyle Act also provides that a reimbursable inpatient service must be in a working relationship with, or a part of, a general medical and surgical hospital. This is intended to assure, not only a continuity of care, but also contiguity of care. For some patients this will be expressed as a continuum of medical service in which the psychiatric treatment is a part of the total medical treatment. For other patients it will simply represent the availability of nonpsychiatric, medical services from the same physicians and in the same hospital setting to which the patient would have turned for medical care were he not psychiatrically disabled. Aside from the direct advantages to the patient in such close working relationships between general medicine and psychiatry, there are multiple indirect advantages to be derived from the greater interchange of professional information that results from psychiatrists' becoming active members of the hospital staff.

Special Problems

Not the least of the special problems that pertain to inpatient services reimbursed under the Short-Doyle Act is the tendency of some people to view this method of providing psychiatric hospital care as the only method, rather than as the best method for some patients. In the earlier months of the legislative session which culminated in passage of the bill, and for a few months after it was passed, there was considerable danger that the Short-Doyle Act would be viewed as the panacea for all mental ills. In many respects it represented the newest approach available to the community and to the psychiatric professions for coping with a serious and long unsolved medical problem of a whole population. But in some lay minds the Act took on some of the quality of a "miracle drug." The long awaited opportunity for early diagnosis and treatment, and even for preventive intervention, seemed to have arrived.

With this looking to the "miracle," there was a tendency by some to abandon the less dramatic and the more traditional approaches to the solution of the problems of the mentally ill, the emotionally disturbed and the mentally retarded. State hospital care was considered "old-fashioned" and, indeed, it was suggested that inpatient services of any other kind, or state services of any kind, were the heritage of an archaic past, without constructive application in these days of community psychiatry. The abandonment of state-operated psychiatric outpatient clinics and even of state-operated psychiatric hospitals was seriously suggested. No state facilities were any longer needed; the Short-Doyle (community psychiatry) millennium had arrived.

After a few years of operation, this "panacea" will no doubt be seen in its true light: as a method of providing certain additional mental health resources, but not as an exclusive and miraculous method. For the state hospital system the implications of the Act are indeed serious. If the patients taken care of in state hospitals come to be viewed in the public mind as chronic, long-term patients who are the residue remaining after the application of local, community services, a tendency might develop to reduce public support of state hospital programs. To counteract this, serious professional and public attention will need to be given to determining methods of working with chronic psychiatric patients and with the more seriously disturbed psychiatric patients, so that the state hospitals can indeed become specialty centers for taking care of the more difficult psychiatric problems of the community. This may mean that the traditionally accepted idea of a low level of service at the state hospitals, with inadequate professional staffing and with minimal financial support, will have to be surrendered; the entire cost of the state hospital program may well

remain at its present level, even though many fewer patients are taken care of. It may only be through such enrichment that effective programs of care for special problems of the psychiatrically disordered and for the more seriously disturbed psychiatric patients can evolve.

The Short-Doyle Act's 90-day limit on the period a patient may stay in a local hospital under the reimbursement plan has created administrative problems requiring clarification and interpretation. It has been decided that the limitation applies to a single period of hospitalization which extends for 90 calendar days from the date of admission to the date the case is closed, and that a patient may be readmitted any number of times but not to exceed 90 days for each admission. While this permits repeated, short-term stays in hospital for patients who have recurring episodes of brief psychiatric disability, it also might be used to discharge patients administratively at the end of 90 days, only to readmit them. This would permit treatment of chronically ill patients rather than limiting reimbursable local hospitalization to the acutely ill. It is anticipated that, since local communities are paying half the costs, and since there is generally a serious shortage of psychiatric beds, there will be little incentive for local communities to undertake the care of chronic psychiatric patients by this ruse. On the other hand, there is a growing pressure from nonmedical persons in the community and from some professional leaders to make the total psychiatric care of patients a local responsibility. Under such pressure, it may be that some local governments will find it desirable, or necessary, to undertake the extended treatment that would be possible by taking advantage of this loophole in the rules.

Mention has already been made of current and anticipated problems in the relationship of local psychiatric inpatient services with state-operated inpatient services. Attention must also be given to the relationship between these locally-operated inpatient services and private psychiatric inpatient facilities. The Short-Doyle Act permits reimbursement of inpatient services only if they are part of, or affiliated with, general medical and surgical hospital facilities. The Act further limits reimbursement to nonprofit, psychiatric facilities. The specific wording of the Act is:

"Inpatient psychiatric services in general hospitals and in nonprofit psychiatric hospitals which are affiliated as the psychiatric division of or with a general hospital . . ."³

A general hospital is:

" . . . A hospital in which many different types of patients are cared for on an inpatient basis and shall consist of various departments,

such as medicine, surgery and pediatrics. It must conform to applicable state and local laws and regulations. A nonprofit psychiatric hospital shall mean a hospital in which psychiatric patients are cared for on an inpatient basis and which is operated as part of, or is affiliated with, a general hospital."⁴

"Nonprofit" has been defined as "a private corporation or association, no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual, or a facility owned or operated by a public entity or agency in this state."⁴

The "affiliation" required by the Act has been interpreted as:

" . . . A working relationship between the psychiatric hospital and one or more general hospitals. This working relationship should be evidenced by a formal written contract or by an exchange of written communications. The relationship may consist of:

- "1. Dual management.
- "2. Financial relationship, whereby the general hospital has a substantial interest in the psychiatric hospital or vice versa.
- "3. Arrangements for interchange of services between the psychiatric hospital and the general hospital, so that the services rendered by either would be readily available to the patients of the other. This, in order that patients in either hospital may be able to obtain any type of service whether it be psychiatric, medical, surgical, etc. In event transfer of a patient from one type of hospital to the other be indicated, such transfer should be readily available to the patient.
- "4. Arrangement of staff relationship in such a way that a substantial number of positions on the staff of the general hospital would be on the staff of the psychiatric hospital and vice versa. This should apply to courtesy staff as well as to the paid staff."⁴

It should be noted that these definitions exclude reimbursement of psychiatric services provided in a private psychiatric hospital operated on a profit basis, or of services not affiliated with a general hospital. The operators of many such hospitals have been distressed about the lack of support given by the Short-Doyle Act to their operations, the implied criticism of their operations, and the tax-supported competition with private resources. Nevertheless, the professional quality of programs and services in private psychiatric hospitals has already been enhanced where there is affiliation with general hospital services and facilities. The isolation of psychi-

atric practice from other medical practice has been intensified by the operation of those private psychiatric sanitariums which have had little or no contact with the rest of hospital practice. Not only has this delayed the necessary integration of psychiatry with the rest of medicine, but it has contributed problems in the total management of psychiatric patients, as well as in the total management of medical and surgical patients who develop psychiatric symptoms.

Serious attention should be given to the Short-Doyle Act requirements for close affiliation between psychiatric services and other medical services in a general hospital, since the standard established here may well be the most desirable standard for all psychiatric inpatient care, whether Short-Doyle-reimbursed, insurance-paid, or privately financed; whether for children, for adolescents, for adults or for the senile. The administrative problems connected with having such affiliations are minimal and, indeed, are insignificant when compared with the professional advantages that accrue.

Short-Doyle Act reimbursement is limited to those direct services which are given patients who are "unable to obtain care privately." The inability to obtain care privately may be by reason either of the unavailability of private professional help or of insufficient funds to pay for such help. As qualified professional personnel become more available, the areas in which qualified professional personnel do not exist become fewer and fewer. However, the high cost of direct psychiatric services means that large numbers of individuals in lower and middle income economic groups continue to be "unable to obtain care privately." As more hospital insurance plans provide payment for all or part of psychiatric hospitalization, an increasing number of patients will have the financial means with which to obtain private psychiatric inpatient service. To this extent, fewer patients will become eligible for inpatient care with the aid of the Short-Doyle Act.

Perhaps the most serious difficulty in the administration of the Short-Doyle Act, especially as it pertains to the development of short-term inpatient facilities, has been the exclusion of state reimbursement for capital expenditures. The state does not share in the costs of building, furnishing or equipping an inpatient facility, or of depreciating buildings and equipment. Unless a local community establishes inpatient services by contract, or establishes inpatient services in facilities which are rented or leased, the cost of buildings and equipment is not shared by the state. This limitation demands that more attention be given to coordinating state reimbursement under the Short-Doyle Act with state and federal reimbursement under the Hill-Burton Act. The system for determining priority of allocations

TABLE 2.—Hill-Burton Priorities for Short-Term Psychiatric Beds in Counties with Short-Doyle Act Reimbursed Inpatient Services

County	Hospital Area	Per Cent of Short-Term Bed Need Met July 1, 1958*	Priority Rating*
San Joaquin.....	Stockton.....	0	1
Los Angeles.....	Torrance/Los Angeles...	9/32	19/46
Monterey.....	Salinas/Monterey.....	15	32/39
Contra Costa.....	Richmond.....	15	36
San Mateo.....	San Mateo.....	15	36
San Francisco.....	San Francisco.....	53	49

*The needs and priorities indicated in the allocation of Hill-Burton funds were established as of July 1, 1958, while the programs referred to are as of July 1, 1959. This was done in order to reflect community efforts to meet measured bed shortages.

under the Hill-Burton Act is being reviewed jointly by the State Department of Public Health, the State Department of Mental Hygiene and the California Hospital Association. Throughout the country, the allocation of Hill-Burton Funds is based on a standard of five psychiatric beds per 1,000 population in a hospital service area. In California, this standard is broken down into 0.5 bed for short-term cases and 4.5 beds for long-term care. It is assumed that all beds in state hospitals belong in the latter category. Included in the inventory of short-term psychiatric beds, however, are those that are used for holding patients pending their commitment.^{5,6} The standard of 0.5 bed for short-term cases per 1,000 population should also be reviewed in light of the fact that a hospital service area may have all the beds for adults that it needs, but have no psychiatric beds for either children or adolescents. In the standard of 0.5 bed per 1,000 population, there is no requirement that some proportion of the beds be available for special patient needs or special kinds of services. Methods of measuring both special needs and specialized services are sorely needed.

The lack of correlation between California's measurement of priority for psychiatric bed construction using Hill-Burton funds and its use of Short-Doyle Act funds for operating inpatient services is noteworthy. Of the 12 counties that established Short-Doyle reimbursed programs for the fiscal year 1959-60, three had been rated by the Bureau of Hospitals in the State Department of Public Health as having a Number One priority for the development of short-term, inpatient psychiatric services. However, of these three counties, only one developed an inpatient service under the Short-Doyle Act. One county which planned to operate two inpatient services with Short-Doyle Act reimbursement established these inpatient services in two hospital areas: one area had a Number Nineteen priority; the other, a Number Forty-six priority in the California Bureau of Hospitals classification.

Of the 12 counties with Short-Doyle reimbursement in 1959-60, three were in hospital areas in

TABLE 3.—Hill-Burton Priorities for Short-Term Psychiatric Beds in Counties with Short-Doyle Programs but Not Providing Inpatient Services

County	Hospital Area	Per Cent of Short-Term Bed Need Met July 1, 1958*	Priority Rating*
Santa Clara.....	San Jose.....	0	1
Sonoma.....	Santa Rosa.....	0	1
Alameda.....	Oakland.....	12	31
Ventura.....	Ventura/Oxnard.....	13	32
Kern.....	Bakersfield.....	14	35
Santa Cruz.....	Santa Cruz.....	51	48

*The needs and priorities indicated in the allocation of Hill-Burton funds were established as of July 1, 1958, while the programs referred to are as of July 1, 1959. This was done in order to reflect community efforts to meet measured bed shortages.

which none of the short-term psychiatric bed need had been met on July 1, 1958. Of these three, only one developed Short-Doyle-reimbursable inpatient services. Six of the programs were developed in hospital areas in which 12 to 15 per cent of such bed needs had been met, yet three of these six programs proposed Short-Doyle-reimbursable inpatient services and three did not. One program involved hospital areas which had met from 9 to 32 per cent of the short-term beds needed; and this Short-Doyle program proposed the establishment of inpatient services. Of the remaining two counties, in which just over half the beds needed already existed, one developed an inpatient service under Short-Doyle while the other did not.

Of the six inpatient services proposed for 1959-60 under the Short-Doyle Act, one was in a hospital area which had not met any of its short-term psychiatric bed needs before the establishment of these services; three were in areas which had 15 per cent of the short-term psychiatric beds needed; one was in hospital service areas which had met between 9 and 32 per cent of short-term psychiatric bed needs; and the sixth was in a hospital service area which had met 53 per cent of its short-term psychiatric bed needs.

For comparison, of the six counties which did not establish inpatient services as part of their Short-Doyle program beginning July 1, 1959, two were in areas in which none of the short-term psychiatric bed needs had been met; one was in an area in which 12 per cent of the need had been met; another was in an area which had met 13 per cent of the need; still another was in an area that had met 14 per cent of its need; and the sixth was in an area in which 51 per cent of the need had been met.

Thus, there appears to be little correlation between the measured need under the priority system established in California for allocation of Hill-Burton funds and the felt need, as indicated by the establishment of inpatient services under the Short-Doyle Act.

Future Developments

In the administration of the Short-Doyle Act, as it pertains both to inpatient services and to any of the other services reimbursable under the Act, the Department of Mental Hygiene has attempted to insure local option and local responsibility. It is the professional conviction of the administrators in the Department that the effectiveness of programs will be directly related to the degree of community involvement and the local public support. It is for this reason that we are interested in maintaining and promoting local responsibility for the development of inpatient psychiatric services. We believe that the provisions of the Act which insure local option must be carefully guarded and nurtured. At the same time, the Department of Mental Hygiene is given the responsibility of controlling the quality of the programs, and this we have attempted to do, not through legislation but through professional consultation.

It is our conviction that, if qualified professional personnel are brought into the programs, they will be able to use professional consultation effectively and they will be at least as interested in maintaining a high quality of program and of services as is the State Department of Mental Hygiene. Thus we have welcomed the latitude given by the Act in defining an inpatient service. We hope to protect the breadth of scope allowed by the Act in providing inpatient services. At the same time, we are greatly concerned with maintaining a high quality of professional staff and of services in the reimbursed inpatient facilities. We hope to achieve this, not through tightly defining personnel standards or the services to be given, but rather through providing skillful, professional consultation to the local program directors and to the professional personnel working in the local programs.

When the state hospitals emerged from their earlier organization as secure refuges for the insane and incompetent, the first steps in transforming these institutions into hospitals consisted of providing more general hospital facilities. Increases in medical personnel, at first, established more positions for physicians, surgeons and trained nurses, long before there were any positions for psychiatrists, except in the top administrative ranks. In their move from asylum-status, our state hospitals were first general hospitals, serving the large populations of the mentally ill and mentally retarded living together in communities the size of small cities. More recently, the psychiatric specialty has, as it were, been added to the medical practices of the state hospitals. We may well envisage the state hospitals of the future as smaller, specialized psychiatric facilities attached to general community hospitals that will provide all the other kinds of medical care

needed by psychiatric patients before, during and after their shortest possible periods of hospitalization for any and all kinds of medical care.

The psychiatric inpatient services of the future may represent all the current varieties of organization and financing, with some new variations in these respects. There will be services for emergency hospitalization, short-term treatment, and longer care for the chronically ill or disabled. There will be full-pay, part-pay and no-pay beds in the same or different facilities. Financing will be through private fees alone, insurance plans, voluntary public contributions, taxes (federal, state, and local), or through any combination of these sources of funds. There will be facilities for adults, but also especially suitable facilities for children and adolescents. Inevitably, there will be differences in the qualities of the professional services, apart from variations in the degree of physical comfort or luxury provided. But the goal will be to offer, in physically adequate facilities, sound treatment programs with uniformly high standards to all citizens, regardless of their

socio-economic status. This means that, wherever the facilities are located, whatever their auspices and however financed, psychiatric inpatients will no longer be isolated geographically, socially, morally or medically.

2900 Buena Vista Way, Berkeley 8 (Hume).

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Films for C.M.A. Annual Session Film Symposia Requested

The previously successful film symposia presented during the California Medical Association annual sessions will be repeated in 1961, April 30 to May 1.

Daytime symposia, each one to center around one specialty, are now being planned for the physician. General programs for doctors, their wives, nurses and ancillary personnel will be presented during the evenings.

There will be a moderator and outstanding physicians, preferably authors, as discussants on each symposium.

Authors desiring to show their films should notify Paul D. Foster, M.D., California Medical Association, 2975 Wilshire Boulevard, Los Angeles 5.

Deadline: December 1, 1960.

The Antihemophilic Globulin in Plasma

Content of Freshly Frozen Single-Donor Plasma Units Prepared by the Los Angeles Red Cross Blood Center

SAMUEL I. RAPAPORT, M.D., MARY JANE PATCH and
JAMES E. CASEY, Los Angeles

PLASMA ANTIHEMOPHILIC GLOBULIN (AHG) activity must be raised to about 30 per cent of normal to stop bleeding in the patient with Hemophilia A (AHG deficiency). Since effective plasma concentrates of AHG are still unavailable in the United States, this requires the administration of large quantities of fresh whole blood, fresh plasma or stored plasma prepared by special techniques that prevent the deterioration of AHG.

Two such stored plasma preparations are available. One is freshly frozen, lyophilized, irradiated, pooled plasma which is commercially available as *Antihemophilic Plasma, Irradiated* (Hyland Laboratories). Individual units of this preparation have been found to contain between about 50 and 100 per cent AHG activity.^{4,2*}

The second stored plasma preparation is freshly frozen, single-donor, type specific plasma. In Los Angeles this is obtained from the Los Angeles Red Cross Blood Center, which distributed approximately 600 units last year for the treatment of patients with coagulation defects.

The adequacy of the AHG content of single-donor frozen units has been questioned. Pool and Robinson² found that 15 of 25 units of frozen plasma examined in San Francisco between December 1955 and August 1956 had only 25 to 50 per cent AHG activity. These units had been stored for less than three months.

Since small variations in the technique of preparing and storing plasma can greatly influence the AHG content, it seemed important to us to check the AHG content of the frozen plasma units being used in Los Angeles. Therefore, a study was set up to measure (1) AHG loss in the preparation of the fresh plasma units, and (2) AHG loss on storage of the units at -20° C. for intervals up to one year.

From the Department of Medicine, University of Southern California School of Medicine and the Los Angeles Red Cross Blood Center.

Supported by a grant (A-2989) from the National Institute of Arthritis and Metabolic Diseases, Bethesda, Maryland, to the University of Southern California School of Medicine.

Submitted June 1, 1960.

*The percentage is determined by relating the activity in the unit tested to the activity of a standard reference specimen of plasma.

• A study was made of the antihemophilic globulin (AHG) content of 16 units of freshly frozen, single-donor, type specific plasma prepared by the Los Angeles Red Cross Blood Center for the treatment of patients with coagulation disorders. Three specimens were examined for each unit—(1) a control sample taken from the donor in a separate small tube, (2) a plasma unit sample before storage, and (3) a plasma unit sample after storage for periods up to one year. From a comparison of the AHG content of Samples 1 and 2, it was found that little AHG was lost in preparing the plasma units. From a comparison of Samples 2 and 3, it was found that a moderate AHG loss (averaging about 20 per cent) occurs on storage. This varied unpredictably from bottle to bottle and was unrelated to the duration of storage. Good AHG activity was found in 4 units after storage for one year.

An individual unit of frozen plasma from the Los Angeles Red Cross Blood Center will contain between 50 and 115 per cent AHG activity (with a standard reference sample of plasma taken as 100 per cent).

METHOD

Sixteen units of frozen single-donor plasma were prepared from random donors in exactly the same manner as the plasma distributed for patient use. The AHG content in three plasma samples was measured for each unit. These plasma samples were obtained as follows:

1. *Control tube sample.* After a standard ACD bottle† was filled, an additional small tube of blood was taken from the donor. The same anticoagulant ratio was used (1 part ACD anticoagulant plus 4 parts of blood). The tube was spun immediately and the plasma decanted and frozen for assay as a measure of the AHG level of the donor.

2. *Plasma unit sample before storage.* The filled ACD bottles were centrifuged at 1800 r.p.m. for 45 minutes in an unrefrigerated centrifuge whose cups were precooled and balanced with ice water (average water temperature 11° C. before and 24° C. after the spinning). The resultant plasma was aspirated into chilled, evacuated 300 ml. flasks and a

†A bottle containing acid-citrate-dextrose for anticoagulant.

TABLE 1.—Individual and Mean AHG Levels, Stated in Per Cent of a Standard Reference Plasma*

Unit No.	Before Storage		After Storage			
	Control Tube Sample	Plasma Unit Sample	3 Months	6 Months	9 Months	12 Months
1	74	73	42			
2	130	149	95			
3	118	121	87			
4	111	118	98			
Mean, 1 to 4.....	106	111	76			
5	83	89		57		
6	125	136		116		
7 .....	...	116		73		
8	100	66		68		
Mean, 5 to 8.....	102	98		76		
9	108	97			82	
10	101	73			85	
11	146	89			112	
12	144	142			102	
Mean, 9 to 12.....	122	97			94	
13	111	98				87
14	113	112				104
15	75	78				68
16	145	133				107
Mean, 13 to 16	108	103				90
Mean, 1 to 16.....	110	102				83

*The 90 per cent confidence limits of our assay are reported elsewhere.⁴ Examples are as follows:

Single Observed Value	90 Per Cent Confidence Limits
60 per cent AHG	48 to 75 per cent AHG
100 per cent AHG	86 to 125 per cent AHG

small aliquot removed for assay as a measure of AHG loss in the preparation of the plasma unit.

3. *Plasma unit sample after storage.* The plasma units were stored at -20° C. in chest type freezers at the Los Angeles Red Cross Blood Center. At successive three-month intervals 4 units were thawed in warm water and an aliquot removed for AHG assay.

AHG was measured by a modification of the Pool-Robinson AHG assay described in detail elsewhere.³ Each sample was run at dilutions of 1 per cent, one-half of 1 per cent and one-fourth of 1 per cent and the mean value of the three dilutions was taken as the AHG value of the sample.

RESULTS

Individual and mean AHG values are listed in Table 1. Log per cent AHG was used in calculating the means because log transformation resulted in a more normal frequency distribution of the data.

The data in Table 1 show:

1. AHG values varied between 74 and 145 per cent in this small series of random donors. (In a group of 30 normal women recently studied in our laboratory the range was between 52 and 133 per cent AHG. These data confirm the known wide range of normal AHG levels in the population.)

2. Except for units 8 and 11, the AHG activity in the control tube samples and in the plasma units before storage was essentially the same. It would appear that the technique of preparing the plasma units rarely results in significant loss of AHG.

3. A moderate loss of AHG activity may occur on storage (average about 20 per cent). This varied unpredictably from bottle to bottle and was unrelated to the duration of storage. The units stored frozen for one year retained good AHG activity.

4. Only one of the sixteen bottles had less than 50 per cent AHG activity after storage. Three-quarters of the bottles had more than 70 per cent AHG activity and in one-quarter of the bottles the AHG activity exceeded 100 per cent.

CONCLUSIONS

These data indicate that the single-donor frozen plasma units distributed by the Los Angeles Red Cross Blood Center contain adequate amounts of AHG for use in patients with Hemophilia A. The units will withstand storage up to one year without excessive loss of AHG activity.

An individual unit will contain between about 50 and 115 per cent AHG activity. The most important

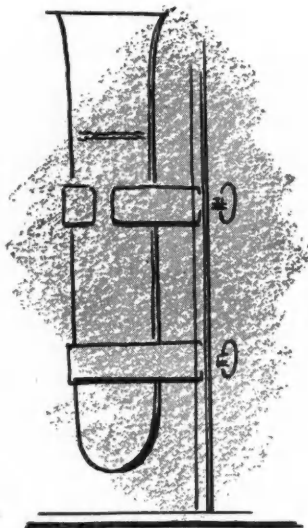
factor determining its AHG content is the AHG level of the donor. (Unfortunately, the large quantity of plasma which must be processed precludes the selection of high AHG level donors by a routine AHG assay screening test.)

Because the storage stability of AHG in frozen plasma varies with the technique of preparation and storage, these conclusions apply only to the plasma units supplied by the Los Angeles Red Cross Blood Center.

USC School of Medicine, 2025 Zonal Avenue, Los Angeles 33 (Rapaport).

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Determining Drug Sensitivity

Use of the Gel Diffusion Method

VAN VLECK CHAMBERS, M.D., Palo Alto

ATTEMPTS TO DEMONSTRATE the presence in human serum of precipitating antibody against drugs that produce sensitivity reactions have resulted in conflicting claims. The original adaptation of the gel diffusion test for precipitins was made in 1957 by Muelling and co-workers^{24,25} who used an agar-stabilized tube technique. The serum of patients thought to have had a drug reaction was tested and a large number of positive tests were reported. We have used the double diffusion method of Ouchterlony,²⁸ which is similar in principle but somewhat different in detail. Ouchterlony's technique has been used to demonstrate human serum precipitating antibody in a variety of conditions, including histoplasmosis¹⁴ and thyroiditis,⁸ and to differentiate antibodies against such antigens as streptolysin-O,¹¹ stinging insects,⁴¹ tubercle bacillus protein,³² trichinella,⁴⁶ amaranth-chenopod pollen,⁴⁷ house dust⁴⁵ and many others.⁴⁸

Drug reactions are becoming more common as more drugs are made available for routine use. Penicillin probably causes 80 per cent of all drug reactions.¹⁵ There is no thoroughly satisfactory test for recognizing penicillin reactions.^{12,35,38,39} Skin tests for penicillin sensitivity, whether scratch or intradermal, have caused death and severe anaphylaxis.^{21,34} They often result in false positive and false negative reactions,* and there is considerable doubt whether skin tests predict or diagnose accurately,^{18,34} although they may be of some help if positive.^{9,10,20} Attempts have been made to incubate penicillin with gamma globulin³⁶ and sulfonamides with gamma globulin¹⁶ and to use these mixtures as complete antigens in skin testing for hypersensitivity to these drugs. There are no reports of the further success of these methods,¹⁸ and at least one earlier reported failure.⁹

Thus, the available methods for distinguishing drug sensitivity are unreliable, misleading and dangerous. A reliable method of demonstrating drug sensitivity in humans would be useful for predicting hypersensitivity, for definitive diagnosis in patients suspected of having had previous reactions, and for

• A study was carried out to determine whether the double diffusion gel test when applied to the serum of patients with clear-cut penicillin reactions of various types, might be useful for demonstrating the presence of precipitating antibody. Results did not demonstrate the antibody.

The difference in results with this test obtained by various workers was not explained by the observations in this study.

Other approaches to determination of the mechanism of the penicillin reaction are discussed, and it is noted that the hemagglutination test, newly applied to the penicillin reaction problem, may be useful after further investigation.

distinguishing drug reactions from other diseases. If results with the gel diffusion technique such as those reported by Muelling could be duplicated, an extremely valuable tool would be available for both clinical and research use.

METHOD

Patients were selected from the Palo Alto Medical Clinic if they had reacted to penicillin or other drugs. Penicillin reactors were sought in particular, however, because they are relatively common,^{2,27} technique and materials could be standardized if only one drug were considered, and reactions had been documented in the patient's charts in most instances. My own observation or clearly described and recorded observation by another physician was the source of validation of the presence and type of reaction in 68 per cent of the cases studied. The remaining 32 per cent of the patients were included only after interview confirmed the details of their reactions. All patients were personally interviewed for all other information included in this report.

The gel diffusion technique was introduced by Oudin²⁹ and amplified as the double diffusion plate by Ouchterlony.²⁸ The method employed in this study is the double diffusion plate as used by the Department of Immunology and Allergy at the Palo Alto Medical Research Foundation.

The agar plates are prepared as follows:

Materials:	Difco Bacto-Agar®	10.00 gm.
	NaCl	4.25 gm.
	Monobasic potassium phosphate	0.19 gm.
	Distilled water	450.00 cc.

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From the Department of Pediatrics, Section of Pediatric Allergy, Palo Alto Medical Clinic, and Division of Immunology and Allergy, Palo Alto Medical Research Foundation.

*References 2, 4, 5, 9, 27, 33, 37, 40, 44.

TABLE 1.—Age and Sex Characteristics of Patients with Reactions

Age Groups in Years	Per Cent Total Reactors		Total No. Reactors		Reactions to Penicillin Administered						Reactions to Other Drugs	
					Orally Only		By Injection Only		Orally and Injected Concomitantly			
	M	F	M	F	M	F	M	F	M	F	M	F
0 to 10.....	0	5	0	1	0	0	0	0	0	1	0	0
11 to 20.....	5	5	1	1	0	1	1	0	0	0	0	0
21 to 30.....	5	22	1	5	0	1	1	4	0	0	0	0
31 to 40.....	9	18	2	4	1	0	0	2	1	0	0	2
41 to 50.....	13	0	3	0	0	0	3	0	0	0	0	0
51 to 60.....	9	9	2	2	0	0	2	2	0	0	0	0
Total	41	59	9	13	1	2	7	8	1	1	0	2

TABLE 2.—Allergic Characteristics of Patients with Reactions

History of	Total Per Cent	Total No. Patients	Reactions to Penicillin Administered			Reactions to Other Drugs
			Orally Only	By Injection Only	Orally and Injected Concomitantly	
Personal allergy.....	22	5	1	3	1	0
Family history allergy.....	35	8	1	5	0	2
Personal or family allergy.....	45	10	2	6	1	1
Previous exposure to drug causing reaction.....	68	15	3	11	1	0
Other drug allergy.....	8	2	1	0	0	1
Poliomyelitis vaccine reaction.....	0	0	0	0	0	0
Insect bite anaphylaxis.....	0	0	0	0	0	0

Salts and agar are added to boiling water and stirred until melted. The mixture is then placed in tubes in 27 cc. aliquots, autoclaved, and capped for storage. When ready to use, the mixture is melted in a boiling water bath. A 9 cm. sterile plastic Petri dish is readied, into which is first poured 3.0 cc. of 1:1000 aqueous Merthiolate. The melted agar is then carefully added and swirled slowly, then allowed to jell. Wells are cut in the agar with the end of a glass tube approximately 0.8 mm. in diameter. A cluster of wells is made by placing four wells at equal intervals around the periphery of a fifth central well, with the inner edges of the peripheral wells each 5 mm. from the outer edge of the central well. Four such clusters are placed in one 9 cm. Petri dish.

Varying dilutions of serum are put into each central well of each cluster. In this study we used undiluted serum and serum diluted 1:10, 1:50 and 1:100 with normal saline solution. The peripheral wells contained a solution of the antigen (drug) in various dilutions. Drug concentrates were made as follows: Sodium penicillin 500,000 units per cubic centimeter; procaine penicillin 500,000 units per cubic centimeter; potassium penicillin 330,000 units per cubic centimeter; benzathine penicillin 1.2 million units per cubic centimeter; tetanus antitoxin 1,500 units per cubic centimeter; and chloramphenicol 400 mgm. per cubic centimeter. Each concentrate was used as such and, in addition, diluted 1:10, 1:50, 1:100, 1:500, 1:1000, 1:5000, 1:10,000, 1:50,000 and 1:100,000 in saline solution. Thus,

each serum concentration was exposed to each of the ten penicillin concentrations. Not all the penicillin-sensitive patients were tested against all the penicillin preparations noted here, but each was tested against the type thought to have been the cause of the reaction, and usually to either the sodium or potassium aqueous forms as well.

The completed plates were kept at room temperature in completely dark, high-humidity containers and read at 24 hours, 48 hours, and 72 hours. All were last read at seven days, 60 per cent were last read at 14 days, and 40 per cent were last read at 21 days.

Tests were made of patients with reactions to oral penicillin alone (3 patients), to injected penicillin alone (15 patients), to oral and injected penicillin concomitantly (2 patients), to tetanus antitoxin (1 patient), and to chloramphenicol (1 patient). Also tested were two patients who had had penicillin but had not had a reaction, and three patients who were currently receiving penicillin with no reaction.

RESULTS

Some general characteristics of the series of patients studied are recorded in Tables 1 and 2. These characteristics resemble certain of those noted in other studies of drug reactions,* suggesting that this is a valid sample even though some of the occurrences within the sample are too few to be significant. Percentages must be interpreted in relation to the total number of occurrences.

*References 5, 10, 18, 21, 27, 34.

TABLE 3.—Data Characteristics of Patients with Reactions

Source	Per Cent Total Reactors	Total No. Reactors	Reactions to Penicillin Administered			Reactions to Other Drugs
			Orally Only	By Injection Only	Orally and Injected Concomitantly	
Source of information*:						
Personal observation.....	14	3	0	1	0	2
Clinic chart.....	54	12	2	8	2	0
Patient's history.....	32	7	1	6	0	0
Total.....	100	22	3	15	2	2
Time interval since reaction occurred (in years):						
Years ago:						
0 to 1.....	40	9	2	4	1	2
1 to 2.....	18	4	1	2	1	0
2 to 3.....	5	1	0	1	0	0
3 to 5.....	14	3	0	3	0	0
5 to 8.....	18	4	0	4	0	0
8 to 12.....	5	1	0	1	0	0
Total.....	100	22	3	15	2	2

*Regarding reaction only (other information by personal interview).

TABLE 4.—Reaction Characteristics of Patients with Reactions

Symptoms	Per Cent Total Reactors	Total No. Reactors	Reactions to Penicillin Administered			Reactions to Other Drugs
			Orally Only	By Injection Only	Orally and Injected Concomitantly	
Type of symptoms:						
Angio-edema, urticaria.....	77	17	2	12	2	1
Shock.....	18	4	1	2	0	1
Rash.....	5	1	0	1	0	0
Total.....	100	22	3	15	2	2
Severity of symptoms:						
Slight.....	14	3	0	2	1	0
Moderate.....	63	14	2	10	1	1
Severe.....	23	5	1	3	0	1
Total.....	100	22	3	15	2	2

A total of 27 patients was tested of whom 22 had had clear-cut reaction to drugs, and 5 had had no reaction to any drug. There were 41 per cent males and 59 per cent females, and their ages ranged from 4 to 60 years, with 54 per cent of the patients between 21 and 40 years of age (Table 1). The largest single category consisted of 15 patients who reacted to penicillin given by injection.

Twenty-two per cent of patients had a personal and 35 per cent a family history of major allergic disease (Table 2); and the combined total of those who had either or both made up 45 per cent of the series. There were few reactions to drugs other than those which caused the reactions studied. Twenty-one who had penicillin reactions had had poliomyelitis vaccine within two years of the time of the test, and none had had a reaction. There were no cases of insect bite anaphylaxis.

No previous exposure to the drug causing the reaction was known in 32 per cent of the patients. This lack of history of exposure may have been the result of the patient's failure to remember correctly

or of incomplete clinical records. Also, for those who had reactions of the serum sickness type, a history of previous exposure was not expected.

Further characteristics of the patients with reactions are shown in Tables 3, 4 and 5. Forty per cent of the patients had had reactions within the 12 months preceding the test (Table 3). Seventy-seven per cent of the reactions were urticaria or angio-edema or both, and 18 per cent were severe shock reactions (Table 4). The reactions were moderate to severe in 63 per cent of the cases. Most patients had had one to six doses of the responsible drug before reaction occurred, and over 50 per cent had symptoms within two days of the last exposure (Table 5).

Table 6 shows the characteristics of the test results. All tests were negative. A total of 50 tests were performed, and almost half of all patients had tests performed for more than one type of penicillin.

DISCUSSION

Failure to demonstrate precipitating antibody in persons with a sensitivity reaction to drugs was not

TABLE 5.—Reaction Characteristics of Patients with Reactions

Doses	Per Cent Total Reactors	Total No. Reactors	Reactions to Penicillin Administered			Reactions to Other Drugs
			Orally Only	By Injection Only	Orally and Injected Concomitantly	
Number of doses of drug before reaction:						
1 to 2.....	68	15	1	12	0	2
3 to 6.....	24	5	2	1	2	0
7 to 10.....	8	2	0	2	0	0
Total.....	100	22	3	15	2	2
Number of days after last dose that reaction began:						
1 to 24 hours.....	36	8	1	5	0	2
1 to 2.....	23	5	1	4	0	0
3 to 4.....	9	2	1	1	0	0
5 to 8.....	14	3	0	1	2	0
9 to 12.....	18	4	0	4	0	0
Total.....	100	22	3	15	2	2

TABLE 6.—Test Characteristics of Reactors (22) and Nonreactors (5)

Drug Tested	Per Cent Total Patients Tested	Total No. Patients Tested	Reactions to Penicillin Administered					Reactions to Other Drugs	Total No. Tests Performed
			Orally Only	By Injection Only	Orally and Injected Concomitantly	Currently Receiving Penicillin	No Penicillin, No Reaction		
Procaine penicillin.....	6	2	0	0	0	2	0	0	8
Bicillin.....	0	0	0	0	0	0	0	0	2
Sodium penicillin.....	12	3	1	1	1	0	0	0	12
Potassium penicillin.....	30	8	1	6	1	0	0	0	8
Procaine + sodium.....	40	10	1	6	0	0	3	0	....
Procaine + bicillin.....	0	0	0	0	0	0	0	0	....
Sodium + bicillin.....	3	1	0	1	0	0	0	0	....
Procaine + bicillin + sodium	3	1	0	1	0	0	0	0	....
Tetanus antitoxin.....	3	1	....	....	....	....	....	1	1
Chloramphenicol.....	3	1	....	....	....	....	....	1	1
Total.....	100	27	3	15	2	2	3	2	32

the result of poor technique. To demonstrate the adequacy of the technique, guinea pig serum (antigen) and rabbit anti-guinea pig serum (antibody) were employed. The result of this test was clearly positive and duplicated results obtained by other workers in the laboratory from which the specimens of serum were obtained. Our experience was not unusual. Mendes,²² in a study of six patients reputed to have died of penicillin reactions, was not able to find precipitins by the double diffusion technique. Previous investigators were not able to show precipitins in persons who had had reactions to pure penicillin.* Rostenberg and Welch,³⁷ using a conjugate of crystalline penicillin and human plasma, were unable to show precipitins. Muelling²⁶ suggested that the penicillin antigen be prepared and allowed to stand in the light for several days, and that no preservative be added to the agar. These directions were followed in repeating the tests with five specimens of serum that had been tested previously, and results were again negative.

The double diffusion plate used in this study might be unsuitable for revealing the presence of precipitin. However, Muelling's technique and the

double diffusion technique are the same in theory and essentially the same in practice.⁴⁸ They are equally sensitive and equally applicable in similar situations.

Callaway⁴ and Welch and co-workers,⁴⁴ using a standard fluid technique for demonstrating precipitins, found a faint precipitate at the junction of serum and penicillin in subjects with penicillin reaction and also in one control. They interpreted these reactions as inadequate to prove the presence of precipitin. A similar reaction may have occurred to produce false positives in Muelling's series, but such reactions clearly did not occur in our tests. They may well have been due to the Liesegang phenomenon, thought to be a nonspecific precipitation related to reactant and precipitate concentrations.⁴²

It is possible that treatment received by the patient interfered in some way with the precipitin test. If the reaction were dependent on precipitins, however, one would expect to find them afterward, since drug reactions tend to recur on subsequent exposure, regardless of therapy for a previous reaction.

The passive cutaneous anaphylaxis test^{30,31} was utilized by us in several studies to determine if pre-

*References 7, 19, 21, 26, 37, 44.

cipitins could be demonstrated by this more sensitive method. In the initial tests, precipitins were not demonstrated.

The infrequent presence of reagin (demonstrated by negative results of direct and passive transfer tests referred to above) seems to eliminate reagin as the cause of drug reactions. It appears that reagin occasionally accompanies reactions but is not the cause of the reaction.

Mechanisms other than these antigen-antibody systems may be involved. Ackroyd,¹ in a classic study, clearly demonstrated antibodies against platelets in a drug reaction to Sedormid® (allyl-isopropyl-acetylcarbamide). Quinine has been similarly suspect, but the mechanism of its action has not been proven.⁶

Enzyme defects are known to mediate some drug reactions. It has been shown, for example, that primaquine sensitivity is a result of a relative lack of glucose-6-phosphate dehydrogenase in the red blood cells of sensitive patients, and this lack is determined by a sex-linked gene of intermediate dominance. Naphthalene and nitrofurantoin (Furadantin®) cause a hemolytic anemia that is associated with a sulphydryl defect in the red cell. These and other reports of genetically and chemically determined drug reactions are summarized by Motulsky.²³ It is possible, therefore, that penicillin reactions may be mediated in part by some similar mechanism although there is no definitive evidence to support the conjecture.

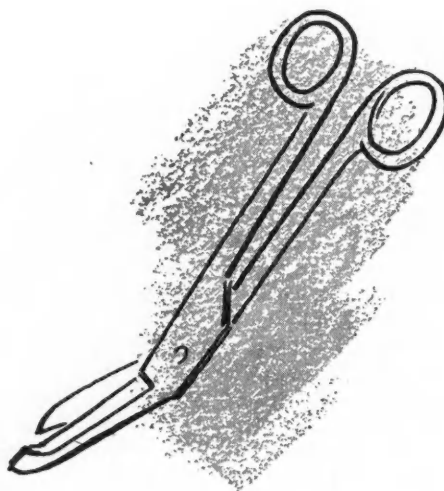
Since our work was completed, several studies have appeared using the red-cell agglutination technique to demonstrate circulating antibody in the serum of patients allergic to penicillin. Ley¹⁷ reported such tests first in 1958. Bird and co-workers³ in 1960 have repeated the survey using serum from patients allergic to penicillin, from patients receiving penicillin but not allergic to it, and from patients neither allergic nor receiving penicillin. They noted positive reactions occasionally and from each of the groups, and concluded along with Ley that this was not a useful method of determining penicillin sensitivity and that the mechanism of the penicillin reaction is not yet explained. Vaughan and Harris in 1960⁴³ reported a smaller number of patients with a larger number of positive tests. Most recently, Heggie¹³ reported studies showing that about 30 per cent of 62 patients with penicillin reactions had positive hemagglutination tests, while about 8 per cent of patients without reactions showed positive tests. He concluded this is a useful test, and further work is indicated. In view of these divergent results and opinions, final comment must await future investigation.

300 Homer Ave., Palo Alto.

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Onychomycosis of the Feet

Treatment with Griseofulvin

RONALD M. REISNER, M.D., RICHARD S. HOMER, M.D.,
VICTOR D. NEWCOMER, M.D., and
THOMAS H. STERNBERG, M.D., Los Angeles

GRISEOFULVIN, a recently introduced orally administered antifungal antibiotic, has been demonstrated to be an extremely effective agent for the treatment of a wide variety of superficial fungus infections of man. The drug was first isolated by Oxford and coworkers¹⁷ in 1939 from *Penicillium griseofulvum* (Dierckx). It is a colorless crystalline neutral compound with an empirical formula of $C_{17}H_{17}O_6Cl$. In vitro studies demonstrated griseofulvin to be fungistatic for a wide variety of fungi pathogenic for man, animals and plants,^{1,4,5,6,8} and early investigation was concerned with its possible use as a fungicide in agriculture.^{5,6}

Gentles, in 1958¹⁰ demonstrated the effectiveness of orally administered griseofulvin for the treatment of experimentally induced ringworm in guinea pigs. This stimulated great interest in griseofulvin as a possible agent for the treatment of fungus infections in man. Early studies demonstrating the favorable effect of griseofulvin on superficial fungus infections were reported by Riehl,^{18,19} Williams and coworkers,²⁷ and Blank and Roth.⁴ These preliminary findings were confirmed by many subsequent investigators.* The essence of these reports is that griseofulvin is at present the treatment of choice in the management of tinea capitis due to a wide variety of organisms, and when properly used has been uniformly successful in achieving cure in all instances recorded to date. It has also favorably influenced the course of the common fungus infections of the palms, soles and nails except for moniliasis and is effective against the majority of fungus infections of the glabrous skin except for tinea versicolor, erythrasma and moniliasis. It is not effective against bacteria or any of the more common systemic diseases caused by fungi. Two possible exceptions appear to be the diseases caused by *Sporotrichum schenckii* and *Nocardia brasiliensis*.^{14,24}

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From the Department of Medicine, Division of Dermatology, University of California Medical Center, Los Angeles 24.

*References 2, 3, 7, 9, 12, 13, 15, 16, 20, 23, 24, 25, 26, 28.

• Griseofulvin, a new orally administered antifungal antibiotic which has proved to be effective for the treatment of a wide variety of superficial fungus infections of man, was used in the treatment of 51 patients with infections of the toenails due to *T. rubrum*. Thirty-four of the patients were treated with griseofulvin alone and seven were treated with griseofulvin combined with surgical avulsion of all involved toenails. The remaining ten had bilateral infections, and avulsion was done on one foot but not the other before griseofulvin therapy was begun.

Of 34 patients who were treated with griseofulvin alone, few had complete cure even after prolonged treatment. Some nails showed improvement for a time, then no further gain; some showed no improvement; some showed resistant wedges of infection which penetrated proximally toward the posterior nail fold.

In the instances of surgical avulsion, clinically normal nails regrew during griseofulvin therapy. This simple procedure, with thorough removal of all underlying keratinous debris, apparently did away with foci of possible reinfection.

The results of the study indicated that surgical avulsion of the toenails in combination with griseofulvin therapy is an effective and practical method of treating onychomycosis of the toenails due to *T. rubrum*.

Therapy of onychomycosis of the fingernails has been in general satisfactory when doses in the range of 1 gram daily are given. However, the response of toenails infected with *T. rubrum* has been in general disappointing. In our experience the majority of patients have not achieved cure even where therapy has been continued for almost a full year. In some instances all nails show evidence of initial improvement only to reach a plateau and then have no further improvement despite continued therapy. In others, initial improvement is followed by evidence of relapse characterized by the development of wedges of infected nail extending proximally toward the posterior nail fold. And in still other cases all but one or two nails may show improvement and eventually cure, while the disease in adjacent nails does not appear to respond at all.



Figure 1.—Technique of surgical avulsion of toenails. Left to right: Large toenail before avulsion; nail bed immediately after avulsion of large toenail, with keratinous debris over surface of nail bed; nail bed after thorough removal of keratinous debris by curettage (the material was culturally positive for *T. rubrum*); and undersurface of avulsed nail, showing intact nail plate and keratinous debris clinging to undersurface.

These disturbing observations are particularly important in view of the fact that in the majority of cases of onychomycosis of the toenails in this country the infecting organism is *T. rubrum*. In addition, residually infected toenails obviously serve as foci of reinfection, and further relapses appear inevitable upon discontinuation of therapy. It seems, therefore, highly desirable to employ any adjuvant measures which will increase the probability of achieving complete cure of the disease in all the toenails.

In the treatment of tinea capitis with griseofulvin, it soon became obvious that clipping off the infected portions of the hair and applying topical fungicides were extremely effective adjuvant measures. This was on the basis that griseofulvin is fungistatic not fungicidal and that infected tissue which is not shed or destroyed harbors viable organisms.¹⁶

The extremely slow and erratic growth of the toenails together with the large accumulation of subungual keratinous debris which may be present provides a situation in which surgical avulsion of the nail plate and thorough curettage of the associated keratinous debris would appear to be highly desirable. The purpose of this paper is to report the value of the surgical removal of infected toenails and associated keratinous debris as adjuvants to griseofulvin therapy of onychomycosis of the toenails due to *T. rubrum*.

MATERIALS AND METHODS

Fifty-one patients with onychomycosis of the toenails were studied. In all cases the infecting organism was proven by culture to be *T. rubrum*. The patients were divided into three groups. Those in Group I, consisting of 34 patients, were treated with griseofulvin alone in dosages varying from 1 gm. weekly to 1 gm. daily for periods of from 14 to 339 days. Group II consisted of seven patients, in whom all involved nails were surgically avulsed before or shortly after the beginning of griseofulvin

TABLE 1.—Average Time in Days to Achieve Percentage Regrowth

	Group I	Group II
Total patients	34	7
Proportion of regrowth (stated as per cent) :		
0 to 24 per cent..	41 days (7-111)	23 days (23)
25 to 49 per cent..	80 days (40-117)	.....
50 to 74 per cent..	145 days (65-225)	91 days (90-92)
75 to 99 per cent..	239 days (111-339)	160 days (118-202)
100 per cent.....	161 days (96-211)	176 days (150-203)

Note: Figures in parentheses indicate range of number of days from which average is derived.

Group I: Patients treated with oral griseofulvin alone.

Group II: Patients treated with oral griseofulvin plus surgical avulsion of all infected nails.

therapy. These patients received griseofulvin in dosages of from 1 gm. twice weekly to 1 gm. daily for periods of from 23 to 203 days. Group III consisted of ten patients with *T. rubrum* infection of the toenails of both feet. In each of these patients the nails of one foot were surgically avulsed before griseofulvin therapy was begun, while the nails of the other foot were left untouched. These patients received griseofulvin in doses of from 1 gm. twice weekly to 1 gm. daily for periods ranging from 78 days to 269 days.

Surgical avulsion was performed under local nerve block anesthesia with 1 or 2 per cent lidocaine (Xylocaine®). After the nail was freed by blunt and sharp dissection from the posterior and lateral nail folds and the underlying nail bed, it was removed by firm traction. The underlying nail bed and especially the lateral gutters beneath the lateral nail folds were thoroughly curetted to remove all residual keratinous debris, care being taken to avoid damaging the matrix. The steps in this procedure are illustrated in Figure 1, which also shows the significant amount of potentially infectious keratinous debris which remains even after complete avulsion of the nail plate. Culture of the debris in this case was positive for *T. rubrum*.

Patients were observed at weekly or bi-weekly intervals and careful records, including photographs in many cases, were kept of the regrowth of new normal nails, as well as of any evidence of relapse or resistance to therapy.

RESULTS

In comparing the results of the treatment of patients in Group I with those of Group II (see Table 1) it was evident that the time necessary to achieve a given proportion of regrowth was in general less in those patients in whom the toenails had been surgically avulsed, in addition to receiving griseofulvin orally, than in those who received grise-

ofulvin alone. A great individual variation in the rate of nail growth was observed.

In Group III the individual variation between patients was not a factor, since the 10 patients had *T. rubrum* infections of the toenails of both feet but surgical avulsion of the nails on only one foot, the other foot serving as a control. All patients received griseofulvin orally within one week after the surgical removal of the toenails on one foot. The results obtained in the individual patients studied in this manner are summarized in Table 2, and the rate of regrowth of normal nails in each of the two feet is presented in Table 3.

In all patients studied in this manner to date the regrowth of new normal nail at any given time was

TABLE 2.—Comparison of Avulsed with Nonavulsed Nails in the Treatment of Onychomycosis with Griseofulvin

Case No.	Age	Sex	Race	Duration of Infection	Dose	Frequency	Duration of Therapy	Total Dose	Results		Comments
									Avulsed	Nonavulsed	
1.	40	F	W	10 years	1 gm.	d	126 d	126 gm.	75% regrowth of normal nail	30% regrowth of normal nail	Still being treated
2.	42	F	W	20 years	1 gm.	d	87 d	87 gm.	Small nails 90% regrowth; large toenail 70% regrowth	Less than 10% regrowth	Some of the nonavulsed nails show streaks of infection almost to posterior nailfold. Still being treated.
3.	35	F	W	Many years	1 gm. 1 gm.	d qod	71 d 35 d	88 gm.	70% regrowth of normal nail	30% regrowth of normal nail	Some of the nonavulsed nails show streaks of infection almost to posterior nailfold. Still being treated.
4.	46	F	W	20 years	1 gm. 1 gm. 1 gm.	biw tiw d	133 d 27 d 108 d	158 gm.	Toenails 100% regrowth; fingernails 100% regrowth	Toenails 50% regrowth; fingernails 80% regrowth	Still being treated
5.	52	F	W	10 years	1 gm. 1 gm. 1 gm.	d biw tiw	21 d 76 d 182 d	111 gm.	100% regrowth of normal nail at 78 days	75% regrowth at 78 days; 90% regrowth at 233 days	At 233 days, previously nonavulsed nails surgically removed. 56 days later they showed 50% new nail growth. Still being treated.
6.	42	F	W	Many years	1 gm. 1 gm.	d qod	29 d 63 d	61 gm.	Small toenails 90% regrowth; large toenail 60% regrowth	Small toenails 75% regrowth; large toenail 20% regrowth	Still being treated
7.	31	F	W	2 years	1 gm.	d	78 d	78 gm.	50% regrowth normal nail	30% regrowth normal nail	Still being treated
8.	28	M	Mex	Many years	1 gm.	d	82 d	82 gm.	Small nails 95% regrowth; large nail 50% regrowth	Small nails 20% regrowth; large nail less than 10%	Still being treated
9.	43	F	W	Many years	1 gm.	d	50 d	50 gm.	Large toenail 30% regrowth; small toenails 50% regrowth	Large toenail 10% regrowth; small toenails 20% regrowth	Still being treated
10.	50	M	W	15 years	1 gm. 1 gm. 1 gm. 1 gm.	biw d biw tiw d	52 d 21 d 63 d 56 d 107 d	185 gm.	100% regrowth at 215 days	40% regrowth at 215 days; 50% regrowth at 269 days	Still being treated

Abbreviations: d=daily; biw=twice weekly; tiw=3 times weekly; qod=every other day.

faster on the toes on which avulsion was done (Table 4).

Not only did the nonavulsed nails fail to regrow as rapidly but in several instances they showed areas of resistant infection extending deep into the apparently new normal nail growth. The problem of persistent infection with resistant areas within the nail is well illustrated by the case of a 28-year-old white man, with a 6-year history of infection with *T. rubrum*. After 215 days of therapy with orally administered griseofulvin alone, resistant tongues of infection could still be seen in the first toe of the left foot extending deeply toward the nail base (Figure 2). The nail was then surgically avulsed and the patient subsequently received griseofulvin 1 gm. daily for 28 days. Then he was outside our observation for five months and received no treatment in that time. When he returned, it was observed that the nail had entirely regrown. The regrowth was new, normal nail, uniform throughout the nail plate, and there was no evidence of resistant areas or reinfection although griseofulvin therapy had been discontinued five months before.

In general, the small toenails show a greater proportional regrowth at a given time than do the toenails of the first toe. Actual measurements, however, indicate that the number of millimeters of regrowth is approximately the same as measured from the posterior nail fold to the free end of the nail and that the proportional difference results from the fact that the large toenail is longer than the smaller toenails.

DISCUSSION

Accumulated clinical evidence concerning the use of griseofulvin in the treatment of onychomycosis of the toenails due to *T. rubrum* indicates that griseofulvin alone is not effective in completely eradicating these infections. Only three of the thirty-four patients in the present series who were treated with griseofulvin alone had reached clinical cure at the time of compilation of the data for this study. Although many of these patients had not yet been treated long enough for a complete cure to be expected, among those who had been treated for such a period, and in whom a definite indication of the final outcome could be determined, there tended to be several clinical patterns: (1) Early improvement followed by apparent arrest of the progress of improvement despite continued adequate griseofulvin therapy; (2) early improvement followed by the development in one or more nails of clinical relapse characterized by progressive, deeply extending wedges of infection; and (3) improvement in the majority of diseased nails even to the point

TABLE 3.—Average Time in Days to Achieve Percentage Regrowth

	Group III	
	Avulsed	Nonavulsed
Total patients	10	10
0 to 24 per cent. ....	....	....
25 to 49 per cent..	50 days (50)	100 days (78-126)
50 to 74 per cent..	81 days (78-106)	255 days (241-269)
75 to 99 per cent..	97 days (82-126)	163 days (92-233)
100 per cent.....	177 days (78-241)	.....

Group III: Patients with bilateral toenail infections due to *T. rubrum*. In each patient all toenails on one foot surgically avulsed and nails of other foot remained as control.

TABLE 4.—Comparison of the Percentage Regrowth of Avulsed vs. Nonavulsed Toenails (Group III) at the Time of This Study

Patient	Duration of Treatment	Percentage Regrowth		Difference Percentage Points
		Avulsed	Nonavulsed	
1.	126 days	75	30	45
2.	87 days	90—S*	10—S&L	80—S
		70—L*		60—L
3.	106 days	70	30	40
4.	268 days	100	50	50
5.	78 days	100	75	25
6.	92 days	90—S	75—S	15—S
		60—L	20—L	40—L
7.	78 days	50	30	20
8.	82 days	95—S	20—S	75—S
		50—L	10—L	40—L
9.	50 days	50—S	20—S	30—S
		30—L	10—L	20—L
10.	215 days	100	40	60

*S—Small toenails.

*L—Large toenails.

of complete clinical cure, yet complete or partial failure of response of one or more nails.

The importance of this problem cannot be over-emphasized from the epidemiological standpoint, since in well over 90 per cent of the patients with onychomycosis that we have encountered to date, the infecting organism was *T. rubrum*. Further, from the standpoint of prognosis for the individual patient, the remaining foci of infection most certainly constitute a constant threat of reinfection and the development of new lesions upon discontinuance of therapy.

The fact that griseofulvin has not been found to eradicate the disease in the majority of patients treated to date may be attributed to one or more of several factors:

1. The slow and erratic growth of toenails certainly must play an important role in determining the clinical response to the disease. It is estimated that the rate of growth of normal, uninfected toenails is such that they are totally replaced in from six to nine months, but no data are available with respect to the rate of growth of severely diseased nails. It is our clinical impression that infection with *T. rubrum* may in some instances inhibit the rate of growth of the toenails.

2. It has been demonstrated that griseofulvin is actually deposited in hair¹¹ and the stratum corneum²⁴ in sufficient amounts to act as a fungistatic agent. Of great clinical importance was the finding that griseofulvin could not be detected in more than minimal amounts in the outer 20 per cent of the stratum corneum,²⁴ and this might in part account

for the persistence of infection and the development of relapses in some instances of *T. rubrum* infection of the palms and soles. The pattern of distribution of griseofulvin in the toenails, the amounts present, the location within the nail and the persistence in situ after initial deposition is unknown, but will most likely prove to be extremely important in de-

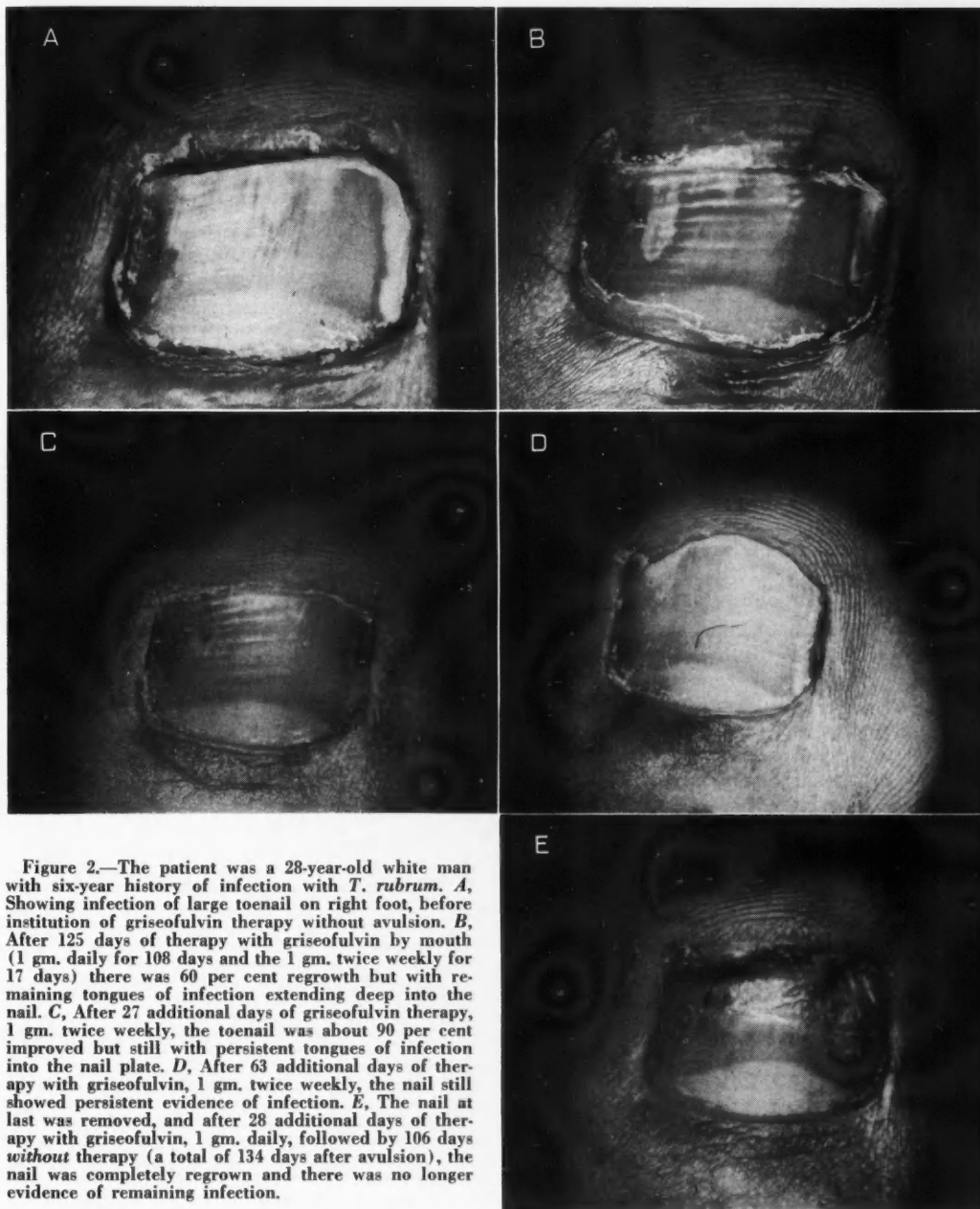


Figure 2.—The patient was a 28-year-old white man with six-year history of infection with *T. rubrum*. A, Showing infection of large toenail on right foot, before institution of griseofulvin therapy without avulsion. B, After 125 days of therapy with griseofulvin by mouth (1 gm. daily for 108 days and the 1 gm. twice weekly for 17 days) there was 60 per cent regrowth but with remaining tongues of infection extending deep into the nail. C, After 27 additional days of griseofulvin therapy, 1 gm. twice weekly, the toenail was about 90 per cent improved but still with persistent tongues of infection into the nail plate. D, After 63 additional days of therapy with griseofulvin, 1 gm. twice weekly, the nail still showed persistent evidence of infection. E, The nail at last was removed, and after 28 additional days of therapy with griseofulvin, 1 gm. daily, followed by 106 days without therapy (a total of 134 days after avulsion), the nail was completely regrown and there was no longer evidence of remaining infection.

termining the rate of cure. One of the theories explaining the inability to detect griseofulvin in the upper layers of the stratum corneum is that it is perhaps destroyed by bacteria and other organisms. This same possibility exists in toenails that are severely infected and deformed.

3. Although *T. rubrum* plays a major and vital role in initiating these infections, the large accumulations of subungual debris are rapidly colonized by other fungi and bacteria. Possibly these organisms have synergistic effect in perpetuating *T. rubrum* infections, or perhaps they have a role in inactivating griseofulvin.

4. Although an increased tolerance to the drug has been demonstrated *in vitro* this has not been encountered clinically to date.^{20,21,22} Still it looms as a possibility in such chronic infections as onychomycosis of the toenails.

5. Other factors, including degree of sweating, occupation, frequency of bathing, use of dusting powder, type of shoes and the frequency of changing shoes and socks are extremely important variables which in the susceptible individual may play a critical role.

6. A peculiar susceptibility involving a unique defect in the host resistance may be postulated as the major factor involved in the inability to achieve complete cure. There is not yet enough data on patients with complete cure and long observation afterward to permit a conclusion as to that hypothesis.

Surgical avulsion of the nail and complete removal of all subungual keratinous debris was considered as an adjuvant of therapy for the purpose of accelerating cure and increasing the incidence of cure in patients with *T. rubrum* infection of the toenails treated with griseofulvin. This was mainly on the basis of the fact that in some instances cure has followed carefully performed surgical avulsion of the nails alone. In addition, it was felt that the operation would mechanically remove a potential source of reinfection at the outset of therapy. Results of the present study strongly support the concept that surgical avulsion of the toenails provides a valuable adjuvant to griseofulvin therapy. In comparing those patients who underwent surgical avulsion of the toenails before or concomitant with griseofulvin therapy (Group II) with those who received griseofulvin alone (Group I) certain clinical impressions stood out clearly. First, the new nails all appeared at essentially the same time and appeared to grow at essentially the same rate. The small toenail regrew in approximately three to four months, but apparently a much longer time was required for the large toenail. The nails appeared firm throughout with no evidence of persistent foci of infection

visible. No arrest in the progress toward cure was noted in toes from which the nail had been removed.

The variability of rate of regrowth of the nails among the patients in these two groups was of such a nature that the exact value of the procedure upon rate of return of normal nails could not be determined accurately. However, in the third group of patients who had bilateral onychomycosis but avulsion of the nails on only one foot, the effect of this procedure was unquestionable. In all instances, the nails returned at a more rapid rate on the foot on which avulsion had been performed.

The avulsion procedure was well tolerated by the patients, resulting in disability for only one to three days even when all the nails were avulsed on the same day. The moderate discomfort and time involved appeared to be well justified by the better results obtained with this adjuvant to the recommended regimen of griseofulvin therapy.

The technique of avulsing is of paramount importance. Not only must the entire nail plate be removed, but in addition all keratinous debris underlying the plate must be thoroughly curetted from the nail bed and from beneath the lateral nail folds to remove all possible foci of reinfection.

Finally, it should also be stressed that this procedure does not supplant the necessity for adhering to the traditional basic principles of foot hygiene.

Department of Medicine, Division of Dermatology, U. C. Medical Center, Los Angeles 24 (Newcomer).

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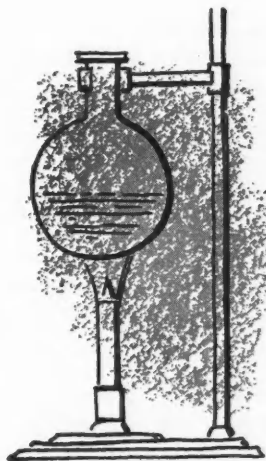
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Reactions to Insect Allergens

The Incidence of Response to Testing Among Allergic And Nonallergic Persons

**WALTER R. MacLAREN, M.D., Pasadena,
BEN C. EISENBERG, M.D., Huntington Park,
D. EDWARD FRANK, M.D., Sun Valley, and
JOSEPH KESSLER, M.D., San Gabriel**

FOR CENTURIES it has been known that in some persons the bites or stings of insects will produce dramatic or fatal reactions. Since reactions of this kind are out of proportion to the amount of insect material injected, it is now recognized that they are allergic rather than toxic, and that there must have been previous sensitizing exposures.

Not until recent times, however, was there recognition that allergic disease of the respiratory tract was sometimes caused by inhalation of insect particles. Since Wilson's paper on sensitization to May flies in 1913,¹³ cases of asthma and hay fever have been reported from time to time due to emanations of such insects as sand flies,⁷ mosquitoes,¹ bees,² house flies,⁵ moths,¹¹ beetles,⁹ aphids,⁴ and weevils.³ In most cases specific sensitivity to the particular insect has been shown by direct or passive transfer testing.

Because of the emphasis usually given to such well recognized sensitizers as household dusts, animal danders, grass pollens or food proteins, the possibility seems often to have been overlooked that sensitivity to inhaled insect particles may be an important cause of clinical disease. Feinberg and co-workers³ in 1956 noted that as many as 65 per cent of a group of patients with seasonal asthma that could not be explained by sensitivity to the usual antigens had positive reactions to tests with such materials as ant eggs, house flies, bees and mosquitoes. Desensitization with the appropriate insect extracts brought relief to 19 of 26 patients.

Weisman and coworkers,¹² after testing allergic patients with extracts of insects of ten orders, concluded that "insect allergy may be a significant cause of seasonal clinical allergy." Perlman⁸ reported that half of patients he had observed with asthma and allergic rhinitis, reacted to standardized insect antigens.

• Positive reactions to skin tests with extracts of various insects were found to be significantly higher in 200 patients with allergic disease than in 150 nonallergic controls.

Forty-seven per cent of the allergic group had positive reaction to bee, 46 per cent to house fly, 39.5 per cent to moth, 29.5 to ant and 28.5 to aphid. Ant and house fly extract caused the greatest number of severe reactions (4+), with moth second and bee third.

Because extracts of nonstinging insects caused reaction almost as often and as strong as stinging insects, it may be inferred that sensitization is due to inhaled insect particles. There appeared to be no necessary connection between a history of having been stung and a strong skin test reaction to bee protein.

Testing for insect sensitivity appears a good way to get diagnostic information that can enhance the effectiveness of treatment.

If insect emanations can be important allergens in those parts of the country where they are present only in the warmer months, they should be even more significant in the central and southern areas of California where insects can grow during almost the entire year. The number of insects that go through a life cycle each season is astronomical. It has been estimated¹⁰ that the number present at any one time in the topsoil of cultivated land runs from one hundred to two hundred million per acre and as they die and fragment they become a source of airborne insect debris.

Because of the lack of published data on this point for the Los Angeles area, we have undertaken to find the incidence of positive reactions to skin tests with insect extracts in a group of patients with allergic disease and in a comparable control group of persons free of any known allergic symptoms. We believed that a significantly higher incidence of reactions in the patients would indicate that these extracts may be used to detect specific sensitivity to insects, and could be used in treatment according to the classical methods of desensitization.

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From the Department of Medicine (Allergy) of the University of Southern California School of Medicine, and the Allergy Clinics, Los Angeles County General Hospital, Los Angeles 33.

MATERIALS AND METHODS

The group with allergic disease was made up of 200 clinic and private patients. The control group was 150 persons with no known symptoms of allergic sensitivity. They were selected to resemble as closely as possible the allergic group. The majority in both groups were between 30 and 49 years of age. Female subjects predominated over male in the ratio of 1.6:1 for patients and 2.6:1 for controls.

Among the 200 patients there were 123 cases of asthma, 107 of nasal allergic diseases, ten of eczema and three of miscellaneous disorders.

Routine tests on the patients (Table 1) showed that 95 per cent reacted to "environmental allergens" such as house dust, animal dander, cotton lint, gums, insecticides and mold spores. Eighty-one per cent were reactive to pollens and 65 per cent to foods. Every patient reacted to at least one of the allergens in the categories named.

The insects used were ants, aphides, bees, house flies, mosquitoes, moths, wasps, and yellow jackets. This selection was dictated partly by availability of material and partly by the frequency of occurrence in the area. Wasps are not as commonly encountered

as the others but were included for comparison with the other stinging insects.

Test extracts were prepared from whole insects, as it has been shown by our own work with desensitization to bee anaphylaxis that the allergenic material is found throughout the insect. After defatting with ether, maceration and thorough drying, the weighed powdered materials were soaked for 48 hours in buffered saline solution containing 50 per cent glycerine as a preservative. The extracts were sterilized by Seitz filtration.

Intradermal testing was carried out in the usual manner, using dilutions of 1:5000, and 1:500 of the insect extracts. Reactions were read as one plus to four plus, but, for purposes of recording, only the two plus, three plus or four plus reactions were considered significant.

RESULTS

The proportions of nonreacting patients and controls and the proportions with two plus, three plus or four plus to each insect extract are given in Table 2.

Among the patients, bee extract produced the greatest number of positive reactions (47 per cent) and house fly extract was second (46 per cent). However, there were more four plus reactions to house fly. The positive reactions to each insect extract among the controls paralleled the incidence among the patients, although at a much lower level.

There were no four plus reactions in the control group to extracts of ant, aphid, fly, mosquito or yellow jacket, and only one each to bee, moth and wasp. The greatest numbers of reactions among controls were to bee and fly. One hundred and twenty-eight (86.4 per cent) of the controls did not

TABLE 1.—Results of Allergen Testing of 200 Patients with Allergic Disease

Class of Allergen	Positive Reactions		Negative Reactions	
	No.	Per Cent	No.	Per Cent
Environmentals (dust, animals, molds, etc.)	190	95	10	5
Pollens (grass, weed, tree)	162	91	38	19
Foods	130	65	70	35
Insects*	142	71	58	29

*Bee, house fly, moth, ant, aphid, yellow jacket, mosquito, wasp.

TABLE 2.—Reaction of 200 Allergic Patients and 150 Controls to Intradermal Tests with Insect Extracts

Insect		PROPORTION WITH VARIOUS DEGREES OF REACTION				
		(Negative)	(2 Plus)	(3 Plus)	(4 Plus)	Total Positive
Bee.....	Patients.....	53.0%	19.0%	18.5%	10.5%	47.0%
	Controls.....	86.0%	12.0%	1.3%	0.7%	14.0%
Fly.....	Patients.....	54.0%	15.5%	16.0%	14.5%	46.0%
	Controls.....	86.4%	9.3%	3.3%	0.0%	13.6%
Moth.....	Patients.....	60.5%	13.5%	14.5%	11.5%	39.5%
	Controls.....	91.3%	6.0%	2.0%	0.7%	8.7%
Ant.....	Patients.....	70.5%	12.5%	12.5%	4.5%	29.5%
	Controls.....	91.8%	7.5%	0.7%	0 %	8.2%
Aphis.....	Patients.....	71.5%	9.5%	13.5%	5.5%	28.5%
	Controls.....	90.5%	6.8%	2.7%	0 %	9.5%
Yellow jacket.....	Patients.....	74.0%	8.0%	11.5%	6.5%	26.0%
	Controls.....	87.3%	10.0%	2.7%	0 %	12.7%
Mosquito.....	Patients.....	77.5%	9.0%	10.0%	3.5%	22.5%
	Controls.....	93.3%	5.4%	1.3%	0 %	6.7%
Wasp.....	Patients.....	78.0%	9.5%	8.0%	4.5%	22.0%
	Controls.....	91.3%	6.7%	1.3%	0.7%	8.7%

react to any insect extract, whereas 58 (29 per cent) of the allergic patients showed no reactions. Statistical analysis confirmed that the difference between the patients and the controls was highly significant in every instance. It may be concluded therefore that a positive reaction to a test with these insect extracts is a reliable indication of some degree of sensitivity.

Eleven of the patients had previously had general reactions to bee or yellow jacket stings. Nine of the eleven reacted strongly to extract of the same kind of insect that had stung them, but two did not. Among the controls two had experienced such reactions and both had positive reaction to testing with the extract. The incidence of sting sensitivity appeared to be significantly higher among persons with allergic disease.

A substantial majority of both patients and controls could recall one or more stings by bees. Many more were not sure, but thought they must have been stung at least once. It appeared impossible to find any close correlation between having been stung and a positive reaction to bee extract. Many non-reactors had been stung repeatedly.

The fact that insect extracts do cause reaction in some presumably nonallergic people could indicate either that the extracts contain nonspecific whealing agents for some persons, or that these subjects have skin sensitizing antibodies. Since five-sixths of the controls who reacted strongly belonged to families in which there were members who had allergic sensitivity, the latter possibility seems the more likely. (Seeking proof on this point was beyond the scope of the present study.)

The method of natural sensitization to these insect proteins can only be inferred from our results. Unless the patient had never been stung, the high incidence of bee sensitivity might be due partly to the introduction of protein along with the venom. In the case of the house fly the sensitivity might result from the insect's saliva released when probing the pores of the skin. However, in the case of the moth, which presumably rarely breaks the skin, the apparently most logical postulation is inhalant sensitization from the wing scales and other parts of the

dried insect. Since sensitivity to moth among our patients was almost as common as to bee and house fly, it is tempting to assume (provided that moth protein is not a much more potent sensitizer) that the greater part of bee and fly sensitivity is also acquired by inhalation.

The results here reported are indicative that sensitivity to insects is present in a large proportion of allergic persons in the Los Angeles area. Because of the extended season when insect particles are in the air, both indoors and out, testing with these materials should be part of the standard procedure for dealing with persons with symptoms of allergic disease. When sensitivity is found it should be treated if it appears to be clinically significant. Furthermore, patients who are not doing well and who have not been tested for sensitivity to insect extracts might well benefit if so tested.

136 North Madison Avenue, Pasadena 1 (MacLaren).

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The Clotting Mechanism

Studies on the Influence of the Temperature of Venous Blood in the Extremities

EDWARD RUBENSTEIN, M.D., and ARTHUR LACK, M.D., San Mateo

THE EXPRESSION "warm blooded" has contributed to the popular misconception that the temperature of blood, like that of the mouth, is maintained within a narrow range of "normal"—37° C. (98.6° F.). This is not the case. In the superficial vessels of the skin and in the peripheral circulation of the extremities the temperature of blood often falls to levels near those of the cool structures through which it courses, a fact known since the time of Claude Bernard.¹

Just as the blood may be cooled by flowing through a cold peripheral structure, such as the foot, it may also be warmed by passing through a "hot" organ, such as an exercising muscle, which releases a great deal of heat.² The blood, then, passively transfers heat according to the laws of thermodynamics, warming the cool structures and cooling the warm structures, thereby serving its important function of homeostasis. The temperature of the blood itself fluctuates widely as it conducts heat to and from the tissues. Because temperature powerfully influences biochemical activity, affecting dissociation constants, pH, viscosities, isoelectric points, solubilities, and especially the rate of enzyme reactions, many interesting questions arise as to the physicochemical properties of blood at cool temperature.

The studies to be discussed here deal with the normal temperature levels in some of the veins of the leg and arm and with the effects that such temperatures have on the blood-clotting system.

EXTREMITY VENOUS BLOOD TEMPERATURE

It has been found that in normal persons engaged in indoor activity the usual temperature of blood in the superficial veins of the lower leg is about 30° C. (86° F.); in the antecubital veins it is about 34.5° C. (94° F.); and deep within the gastrocnemius muscle it is about 36° C. (97° F.).³ In afebrile bedridden patients the temperatures are essentially the same, except that the level is about 2.5° C. (4.4° F.)

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From the Departments of Medicine and Pathology, Stanford University School of Medicine, Palo Alto, and the Departments of Clinical Physiology and Pathology, Community Hospital, San Mateo.

• At the cool temperature (about 86° F.) of superficial venous blood in the lower extremity, blood viscosity is significantly increased, favoring stasis, the clotting mechanism is retarded, and the resulting clots are fragile and adhere weakly to vein walls. These findings may have pertinence in regard to the tendency for thrombi formed in cool vascular beds, such as those of the lower leg, to give rise to emboli.

cooler in the gastrocnemius muscle of the confined subjects.

The low temperature in the leg would be expected to alter enzyme activity, since the reaction rate of most enzymes falls about 200 per cent with a 10° C. drop in temperature (van't Hoff's rule).⁵

COOL TEMPERATURE AND BLOOD CLOTTING

Since the blood-clotting system consists of a sequence of enzyme reactions, the effect of low temperature on the clotting mechanism was studied.^{3,4} At the temperature of superficial venous blood in the lower leg it has been found that whereas the viscosity of blood is increased about one-third, leading to stasis, the rate of clotting is significantly retarded. For instance, the usual Lee-White clotting time at 37° C. (98.6° F.) is 4.5 minutes; at 30° C. (86° F.) it is about 7 minutes. Likewise, the prothrombin time increases from 14.5 seconds to about 20 seconds as the blood temperature is lowered from 37° C. (98.6° F.) to 30° C. (86° F.).

PHYSICAL CHARACTERISTICS OF "COOL CLOTS"

Although the clotting mechanism is retarded at cool temperature, blood does clot. The resulting clots, however, have been shown to be less cohesive than "warm clots," being more fragile when exposed to both compressive and tractive stresses.^{3,4} Moreover, acute clots formed in the venae cavae of rabbits are much less adhesive to vein walls when kept at cool temperature than when maintained at the temperature that prevails in the middle of the body.⁴

These studies, then, indicate that at the cool temperature of the superficial venous blood in the lower extremity, blood viscosity is significantly increased,

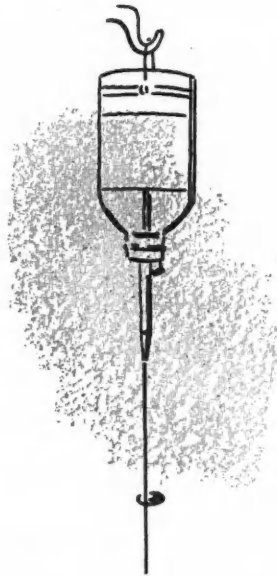
favoring stasis, the clotting mechanism is retarded and the resulting clots are fragile and adhere weakly to vein walls. Such findings may have pertinence with regard to the tendency for thrombi formed in cool vascular beds (such as those of the lower legs) to give rise to emboli.

There is a need for the establishment of the biochemical and physiological characteristics of tissues at the cool temperatures of the periphery of the body. It seems reasonable to predict that the physicochemical behavior of many of the constituents of blood may be quite different when the blood is in the heart than when the blood is in the hand.

34 North San Mateo Drive, San Mateo (Rubenstein).

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CASE REPORTS

Elevation of Blood Pressure by Intravenous Use of Hydrocortisone in Hemorrhagic Shock

EDMUND J. HARRIS, M.D., and
JOHN E. CONNOLLY, M.D., San Mateo

VASCULAR COLLAPSE secondary to great loss of blood is an emergency of the greatest urgency. Unless blood, fluids or vasopressors are at hand, the patient may die before they can be obtained. Giving hydrocortisone intravenously has been reported to be life-saving in such situations.^{2,3,4}

The use of hydrocortisone intravenously had been empirical until recent animal experiments showed that it is remarkably effective in elevating the blood pressure in hemorrhagic shock if it is administered soon after the shock begins.¹

In the present case, acute vascular collapse was reversed by the use of intravenous administration of hydrocortisone and the patient lived.

REPORT OF A CASE

A 36-year-old bartender was admitted to Mills Memorial Hospital for treatment of progressive claudication of the lower back, hips and thighs. Symptoms had been present for two years and were most pronounced on the right. An aortogram demonstrated complete occlusion of the right common iliac artery, severe stenosis of the distal abdominal aorta and left common iliac artery, and extensive filling of small collateral vessels. On October 10, 1957, resection of the distal abdominal aorta, the bifurcation and both common iliac arteries was carried out. An endarterectomy was performed on the right external iliac artery to the level of the inguinal ligament. A lyophilized bifurcation homograft, obtained from a large central vessel bank, was inserted to reestablish arterial continuity. Postoperatively there was a return of all the pedal pulses bilaterally, and the patient's course was uneventful.

On the seventh postoperative night, shortly after his second period of ambulation, the patient sat up in bed and complained to a nurse of a sudden sick feeling and of lightheadedness. Then he immediately

collapsed into a comatose state, perspired profusely and gasped for air. Within a minute the surgeon, happening by on evening rounds, noted there was no palpable peripheral pulse and that the veins of the extremities were collapsed. No distinct heart beats were audible. The patient was immediately given oxygen by mask and placed in Trendelenburg position. Hydrocortisone (Solu-Cortef®) was at the bedside and 200 mg. was given immediately into the femoral vein.

Within three to four minutes there was evidence of some response, manifested by irrational movements of the extremities and facial twitching. Heart sounds were heard clearly about ten minutes after this catastrophe, and a faint radial pulse returned. The systolic blood pressure was recordable at 60 mm. of mercury. The administration of saline solution by vein then raised the systolic pressure to 70 mm. of mercury in the next five to ten minutes, at which time a vasopressor drug was added to the intravenous solution—levarterenol (Levophed®) 4 cc. of 0.2 per cent solution to 1,000 cc. of 5 per cent dextrose in water, given at rate of 2 cc. per minute. The patient had regained full consciousness, but all superficial vessels still were in partial collapse. For the next 90 minutes, while blood was being cross-matched, the systolic pressure was maintained between 90 and 100 mm. with a vasopressor agent given by intravenous drip.

Since the most likely cause of the shock appeared to be hemorrhage from the operative site, the patient was returned to the operating room. No blood was found in the peritoneal cavity, but there were about three liters of blood, some freshly clotted and some fully fluent, in the retroperitoneal space, which had previously been dissected surgically. The pressure of the large volume of blood had extended the retroperitoneal dissection across the midline to beneath the liver, to the undersurface of the diaphragm on the left and deep into the pelvic cavity. As soon as the peritoneum was incised over the large hematoma, there was a recurrence of hemorrhage from the depth of the wound. Tamponade of the abdominal aorta just distal to the renal vessels almost controlled the hemorrhage, except for a slight amount of back bleeding. In the anterolateral wall of the previously inserted homograft, 1.5 cm. distal to the proximal suture line, there was a tear about 0.5 cm. long and 0.3 cm. wide. It was not at the

From the Department of Surgery, Stanford University School of Medicine, San Francisco, and Mills Memorial Hospital, San Mateo. Submitted May 19, 1960.

origin of any former aortic branch of the homograft.

A 3 cm. sleeve of the homograft including the lesion was excised and a segment of thoracic artery was used to replace it. The patient tolerated the procedure well. He returned to his former employment and to an active life.

Upon histologic examination of the site of the tear in the homograft, the tissue was observed to be quite thin, consisting almost entirely of media in the area of the lesion. Disrupted medial tissue replaced by fibrin and undergoing organization was present at the margin of the defect. The other areas of the homograft were covered by a thin layer of adventitia.

DISCUSSION

The hemorrhage in this patient was due to a rupture in the wall of the lyophilized aortic homograft. Microscopic study showed that the adventitia, normally the most resistant layer of a vessel wall to rupture, was absent in the area surrounding the tear. Presumably the adventitia had been stripped from this segment during the preparation of the graft. The volume of hemorrhage was greater and more rapid in development than usually occurs with rupture of an abdominal aortic aneurysm because of the existing retroperitoneal cavity which had been recently surgically created.

The acute profound shock in this patient was similar to that observed in dogs subjected to hemorrhagic shock. In experiments on dogs it was noted that large doses of hydrocortisone, if administered intravenously within the first 30 minutes after blood pressure had decreased to 50 mm. of mercury, will uniformly return the blood pressure to 80 mm. or above and maintain it for extended periods.¹ How hydrocortisone does this is not known. There is evidence that normal circulating vasopressors will produce vasoconstriction only in the presence of adrenal cortical compounds. The amount of adrenal cortical compounds available and necessary during hemorrhagic shock may play a role in the apparent action of hydrocortisone in this situation.

It does seem apparent from reported cases such as the present one, and from animal experimentation, that hydrocortisone should be widely available for immediate intravenous administration to combat hemorrhagic shock and to maintain life until measures that take more time can be started. The initial intravenous dose should be 200 mg. If there is no response, up to 500 mg. of the drug may be given safely.

SUMMARY

Vascular collapse due to the rupture of an aortic homograft was successfully treated with hydrocortisone given intravenously. The administration of hydrocortisone was the initial procedure in a series of supportive measures. Hydrocortisone by vein may be life-saving in hemorrhagic shock.

36 South El Camino Real, San Mateo (Harris).

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Anaphylactoid Reaction to Oral Penicillin

LOIS PENDLETON TODD, M.D., Palo Alto

ANAPHYLACTOID REACTION is a severe, shock-like systemic disturbance occurring within thirty minutes after a substance to which a person is hypersensitive enters his body. Among the wide variety of pharmacological and biological substances that can act as antigenic agents is penicillin in any of the many forms in which it is prepared.

The first case of anaphylactoid shock from penicillin administered intramuscularly was reported in 1945.⁴ Since that time the widespread use of penicillin has resulted in an increasing number of well documented instances of severe anaphylactoid reaction to this antibiotic. Even penicillin taken by mouth may cause severe^{7,10} or fatal¹³ anaphylaxis. Since 1953 when the first report of anaphylactoid reaction to ingested penicillin was published,¹⁶ 28 cases have been reported in the English literature.* These were recently reviewed by Batson.¹

This hazard associated with the use of this usually innocuous drug emphasizes that it ought not be administered without valid reason for its use on sound medical principles. Even when there is no past record of an allergic reaction to penicillin, the occasional serious consequences of using this drug fully justify requiring clear medical indications of penicillin-sensitive bacterial infection before it is prescribed. The present report of anaphylaxis following ingestion of penicillin by a young woman without previously known penicillin sensitivity emphasizes these principles.

CASE REPORT

On November 16, 1959, a 20-year-old woman student came to the Stanford University Student Health Service with complaint of a sore throat. Oral temperature was 97° F., and the pulse rate 72. Beginning coryza and minimal pharyngitis were noted. One slightly enlarged lymph node was palpated at the apex of each anterior cervical triangle. A long-

Submitted June 13, 1960.

*References 1-3, 5-15, 17.

acting antihistamine and a throat lozenge (containing bacitracin and tyrothricin) were prescribed.

The following morning, thinking she was unimproved, the patient consulted an otolaryngologist, who found essentially the same physical changes. She was given Pen-Vee® tablets (each containing 300 mg. of penicillin) with instructions to take one three times a day. She took the first tablet at 12:05 p.m., then went to the dining room for lunch, which is served at 12:15. Before sitting down to the table she felt prickling, burning sensations all over her body and became so flushed that her roommate exclaimed that she looked as "red as a beet." By that time she felt very ill and returned to her room, some sixty feet away, where instantly she collapsed on the bed.

The residence unit counselor called the Student Health Service at 12:25. By the time I reached her, some five minutes later, and twenty minutes after she had taken the penicillin tablet, her skin was dark red and her eyelids and lips decidedly swollen. She appeared weak and frightened. No radial pulse could be felt. The pupils were dilated, the conjunctivae suffused, the nail beds cyanotic and respirations rapid and shallow. When questioning elicited that the patient had taken penicillin, 0.8 ml. of 1:1000 aqueous solution of epinephrine was promptly given intramuscularly, followed 3 minutes later by hydrocortisone (50 mg. of Solu-Cortef® in solution) and then by 0.5 cc. of 1 per cent solution of metaraminol bitartrate (Aramine® bitartrate) both given intramuscularly. At this time the heart rate, counted by stethoscope, was 160 and the beat was light. The radial pulse could not be counted. The cyanosis appeared to be due to laryngeal edema and vasomotor collapse. There were no rales noted in the chest. As no sphygmomanometer was at hand, the blood pressure was not determined. Within fifteen minutes after metaraminol bitartrate was given, the skin began to become a lighter red and the breathing improved in quality. Gradually the swelling of the eyelids and lips subsided and the suffusion of the conjunctivae cleared. Gradually the heart rate slowed to 88 and the beat became more forceful. A few minutes later a very strong, shot-like radial pulse at a rate of 68 a minute was felt.

A half hour later the color of the skin was normal. The patient relaxed and went to sleep for a few minutes. During the reaction she did not appear to have lost consciousness. At 3 p.m. 4 mg. of triamcinolone was given by mouth. Two hours later the patient said she felt fine. Nevertheless, she was taken to the infirmary for observation. There she ate a hearty dinner. Another 4 mg. tablet of triamcinolone was given at 7 p.m., and at 10:30 p.m. 8 mg. was given. The next morning the patient returned to her dormitory and to her classes. Her cold was gone.

She continued to take triamcinolone, one 4 mg. tablet every six hours for one day, three tablets the next day, two tablets the next, and then one tablet for a day. The patient recovered completely. At no time was there pruritus or urticaria.

It was learned that the patient had received penicillin intramuscularly four times previously between 1948 and 1957. She had never had any manifestation of any allergic diathesis, but a brother was hypersensitive to house dust.

In light of the alarming developments in the present case, and in others reported in the literature, it would seem good routine to observe a patient for 20 minutes after administration of penicillin by any route.

SUMMARY

A healthy young woman who had shown no previous sensitivity to penicillin had severe anaphylactoid reaction to a 300 mg. tablet of penicillin (Pen-Vee®) taken orally.

1445 Hamilton Avenue, Palo Alto.

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Chronic Disseminated Histiocytosis X— Eosinophilic Granuloma of Skin, Mucous Membrane and Bone

FRANCIS J. SULLIVAN, M.D.,
JOHN H. EPSTEIN, M.D., and
J. RICHARD SKAHEN, M.D., San Francisco

PREVIOUS REPORTS have noted the involvement of multiple organ systems by lesions microscopically identical to those of eosinophilic granuloma of the bone.^{1,3,5,7,8} The apparent association of the changes in Hand-Schüller-Christian disease, Letterer-Siwe disease and eosinophilic granuloma led to the development of the concept of Histiocytosis X as a nosologic term to include these three formerly separated disease processes.^{4,8} The common basis for all three conditions is an infiltrative, destructive and apparently specific proliferation of atypical histiocytes.

While most investigators were soon convinced of the intimate relation between Hand-Schüller-Christian and Letterer-Siwe disease, some felt that there was insufficient evidence to include eosinophilic granuloma as part of the disease complex.² Recent reviews, however, by Kierland⁵ and McKay¹⁰ and their coworkers presented additional evidence to support the relationship of eosinophilic granuloma to the other two disease states. They reported eight cases with lesions of the skin, mucous membranes and bone. Diabetes insipidus, which is commonly found in Hand-Schüller-Christian disease, was noted in six of the patients. Microscopically the lesions showed histiocytic proliferation, hemorrhage and aggregations of eosinophils which are typical findings of eosinophilic granuloma. The lesions of Hand-Schüller-Christian disease are essentially devoid of eosinophilic aggregates.

We are here reporting an additional case of eosinophilic granuloma in which there were extensive lesions of the skull, mucous membranes and skin with (apparently associated) pulmonary changes.

It should be noted that eosinophilic granuloma of this type is not related to either the eosinophilic infiltrates in the skin associated with certain allergic and lymphomatous processes or the so-called eosinophilic granulomas of the face.⁶

REPORT OF A CASE

The patient was a 62-year-old white man who had been in good health until, at the age of 49, he noted pain in the left ear, followed by purulent drainage from the left auditory meatus and diminished hearing on that side. In the next few months he became aware of an asymptomatic softening of the bone in the left temporal area. Three years later he noted a roughening of the mucosa lining his left cheek. At that time he sought medical advice and was admitted to Veterans Administration Hospital, San

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Division of Dermatology, Department of Medicine, University of California School of Medicine, San Francisco 22.



Figure 1.—The lesion in the left inguinal area. The tenacious white exudate is clearly visible.

Francisco, where biopsy of the calvarium and buccal mucosa revealed changes diagnosed as eosinophilic granuloma. A roentgenogram of the chest at the time showed a rather pronounced degree of pulmonary fibrosis with numerous blebs bilaterally. The patient was treated with 1,590 roentgens tumor dose (250 kilovolt peak, 15 milliamperes, 0.7 mm. copper half value layer) to the skull lesion and in the next 12 months there was a cessation of the drainage from the ear and radiographic evidence of recalcification of the osteolytic lesion in the skull.

He remained asymptomatic until age 60, when he noted an erythematous mass in the left inguinal region which increased in size and eventually ulcerated. The lesion persisted despite a variety of topical treatments and several courses of antibiotics given systemically.

He was first seen at the University of California Medical Center, San Francisco, in April, 1959, at the age of 62. At that time he was admitted for evaluation after biopsy of the inguinal lesion showed changes diagnosed as eosinophilic granuloma.

Results of physical examination were within normal limits except for the following changes. There was a 3 cm. by 10 cm. deeply ulcerated, exquisitely tender, indurated lesion in the left inguinal area (Figure 1). It was covered with a white, tenacious, foul-smelling exudate. There was a small satellite ulcer at the superior margin of the main lesion. An irregular, firm, 3 cm. lesion with deep invaginations was noted on the left side of the buccal mucosa (Figure 2).

An irregular, nontender, firm depression was noted in the left temporoparietal region. No bruit or abnormal pulsations were noted. The left tympanic membrane showed a small perforation anteriorly, and auditory acuity was decidedly impaired on this side. The right tympanic membrane was intact but there was a moderate amount of debris in the right external auditory canal. There was some increase of the anteroposterior diameter of the bony



Figure 2.—The lesion of the left buccal mucosa. Deep invaginations into the tumor mass can be seen.



Figure 3.—Roentgenogram of the chest showing diffuse bilateral fibrosis and bullous emphysema.

thorax, and respiratory expansion was limited bilaterally. The chest was hyper-resonant to percussion, and breath sounds were diminished throughout. A few fine inspiratory basal rales were heard.

The hematocrit was within normal limits. Leukocytes numbered 5,500 per cu. mm.—84 per cent polymorphonuclear leukocytes, 10 per cent lymphocytes, 4 per cent eosinophils and 2 per cent monocytes. The sedimentation rate by the Wintrobe method was 22 millimeters in one hour. A bone marrow examination was interpreted as normal. Urinalysis showed a specific gravity of 1.010 and 1 plus albuminuria. On microscopic examination many leukocytes and nonmotile rods were seen. Nonmotile salmonella grew on a culture of urine. Phenolsulfonphthalein excretion was 35 per cent in 30 minutes and a total of 50 per cent in one hour, indicating impaired renal function. A Hickey Hare hypertonic saline test showed no evidence of diabetes insipidus.



Figure 4.—Roentgenogram of the skull showing the large translucent osteolytic lesion involving the temporal, parietal and occipital bones. The metallic sutures show the site of the biopsy.

An electrophoretic determination of the serum proteins showed a low albumin value (44 per cent) and elevated alpha-2 and beta globulins (12.5 per cent and 19.0 per cent respectively). Alpha-1 and gamma globulins were within normal limits, as were serum electrolytes, cholesterol and alkaline phosphatase, and urinary 17 hydroxycorticoids and 17 ketosteroids.

Results of skin tests for coccidioidomycosis, blastomycosis and histoplasmosis were negative. There was positive reaction to an intermediate strength intradermal tuberculin test. A culture of material from the inguinal lesion grew streptococcus viridans and coagulase-positive micrococcus aureus. Studies for deep fungi and acid-fast bacteria were negative by both direct examination and culture methods.

An electrocardiogram tracing was abnormal but of no characteristic pattern. A roentgenogram of the chest showed pulmonary emphysema and fibrosis with pronounced blebs and bullae (Figure 3). In films of the skull a large osteolytic lesion in the left calvarium (Figure 4) was observed and mastoid films showed diffuse sclerosis of the entire left mastoid area. Roentgenograms of the pelvis showed extensive destructive changes involving the left sacroiliac joint, the left ala and body of the sacrum and the medial portion of the left iliac wing. Lesions were also noted in the lesser trochanter of the left femur (Figure 5).

Histologically the calvarial, buccal mucosal and inguinal lesions showed essentially identical changes. There was decided proliferation of abnormal histiocytes in which occasional mitotic figures were seen. Abnormally large eosinophils were scattered throughout the proliferative areas and in some foci they formed compact masses typical of so-called "eosinophilic abscesses." There were also focal areas of extravasated erythrocytes (Figure 6). In addition



Figure 5.—Roentgenogram of pelvis showing osteolytic lesions in the sacrum, left ischium and femur.

to the foregoing features, the biopsy of the mouth lesion showed thinning of the mucosa over the histiocytic tumor while at the margins of the tumor nonspecific acanthosis was evident. Infiltration and destruction of skeletal muscle was also noted in the buccal lesion (Figure 7).

During the course of this evaluation, the inguinal lesion was treated with potassium permanganate irrigations and topical antibiotic lotions without improvement. He was then given 1,000 roentgens skin dose (250 kilovolt peak, 30 milliamperes, 2.9 mm. copper half value layer) in divided daily doses over a 14-day period. At the end of therapy the lesion had decreased to about half its original size and the purulent element was gone. Pain and tenderness also ceased. However, two months later the ulceration had again attained its original size, appearance and tenderness.

DISCUSSION

Excepting direct extensions from underlying lesions in bone and lymph nodes, the most common extra-skeletal sites of involvement with eosinophilic granuloma are the skin of axillary and anogenital regions, and the buccal mucosa. This distribution is so characteristic as to be of diagnostic use. The patient in the present report is a typical example. Histologically the lesions of the skin, mucous membranes and bone sites were essentially identical and corresponded closely to the structure of the lesions of eosinophilic granuloma reported by other investigators.^{5,10} This consisted of infiltration of the tissue with large masses of histiocytes and eosinophils, the latter frequently forming the so-called eosinophilic abscesses. Minute hemorrhagic areas were constant features. In addition, pronounced nonspecific acanthosis was noted in the mucosal lesion.

In several of the previously reported cases, diabetes insipidus was an associated condition. In the

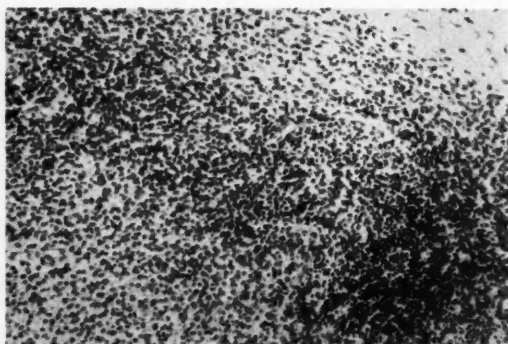


Figure 6.—Photomicrograph of the inguinal lesion showing scattered, darkly staining eosinophils. In the lower right these cells aggregate to form a so-called eosinophilic abscess ($\times 200$).

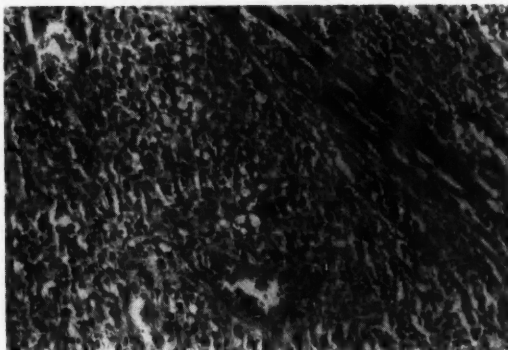


Figure 7.—Photomicrograph of the buccal mucosal lesion showing extravasation of erythrocytes and destruction of skeletal muscle fibers ($\times 480$).

present case, despite extensive involvement of the calvarium no evidence of this process was demonstrable.

Another feature of this case was the decided pulmonary fibrosis and bullous emphysema. Similar changes have been noted by other investigators^{1,8,9} and considered to be pulmonary involvement by the disease process. Pulmonary involvement may indicate a less favorable prognosis.

None of the multiple types of therapy tried for this condition, including antibiotics, corticosteroids, adrenocorticotrophic hormone and radiomimetic drugs, have produced outstanding results. Only radiation therapy has met with any real success. In the present case it proved useful for control of the osteolytic skull lesion but not the skin lesion.

The relationship of eosinophilic granuloma to Hand-Schüller-Christian disease and Letterer-Siwe disease seems quite probable, many examples of intermediate forms having been reported in the last several years. Recognition of this probable relationship, however, has not clarified the etiology.

SUMMARY

A case is reported of eosinophilic granuloma involving the calvarium, buccal mucosa and inguinal skin. The diagnosis was established by histologic study of each lesion. Radiologic examinations revealed presumed involvement of the lungs and pelvis. There was no laboratory or clinical evidence of diabetes insipidus. The present case is considered another example of the disease group called Histiocytosis X, which includes those disease entities formerly called eosinophilic granuloma of the bone, Hand-Schüller-Christian disease and Letterer-Siwe disease.

Division of Dermatology, Department of Medicine, University of California School of Medicine, San Francisco 22 (Sullivan).

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Relief of Canker Sores on Resumption Of Cigarette Smoking

RALPH BOOKMAN, M.D., Beverly Hills

ALTHOUGH APHTHOUS STOMATITIS—"canker sores"—usually takes the form of lesions of the oral mucosa or tongue that heal spontaneously, sometimes the lesions are multiple, confluent, recurrent and resistant to therapy. In that form the disease can torment the patient and dismay the physician who treats him.

The etiology of recurrent aphthae is obscure. Various observers have incriminated viral infection,^{1,5,11} allergic sensitivity to foods,³ hormonal influence (with exacerbation related to menses^{2,4}) and trauma from weak organic acids,^{8,12} but proof of any single cause is lacking.

Submitted May 4, 1960.

Numerous forms of therapy—antibiotics both locally⁶ and systemically,⁷ hydrocortisone,¹⁰ a variety of topical agents and frequent smallpox vaccinations⁹—have been reported, but none with uniform success.

In these circumstances any observation, however perplexing, that might cast light on the cause or treatment of this disease merits reporting.

In the four cases herein reported, the patients had dramatic and almost complete remission of aphthae as long as they continued to smoke tobacco in cigarettes. In two cases the discovery of the phenomenon was entirely fortuitous; in the other two, in light of this observation, smoking was advised.

CASE 1. The patient, a man 58 years of age, had a history of multiple aphthae developing within a week after he stopped smoking 18 years previously. The disease followed a regular pattern: Large multiple and painful lesions would occur, sometimes ten or twelve at once, involving the tongue particularly and making eating and speaking difficult. After about two weeks they would abate, with a period of comparative comfort for three or four days, then the cycle would start again. Up until the time the series of multiple lesions began, the patient had noted a small solitary canker sore about once a month. Several months after the onset of the more severe lesions, the patient started to smoke again. Within 24 hours the pain was relieved and within three days the aphthae disappeared. Thereafter, as long as he smoked he was free of lesions except for about one small solitary ulcer once a month. Several times he stopped smoking again, and each time severe aphthae developed within a few days, then subsided when he resumed smoking. He said the phenomenon apparently was not related to the brand of cigarettes and, as a heavy smoker, he could not estimate the minimum number associated with relief.

There were no symptoms suggestive of allergic sensitivity in his history, nor could questioning elicit any specific inciting or aggravating factors related to the development of aphthae.

CASE 2. A 53-year-old man had a continuous series of large, recurrent, multiple and confluent ulcerations of the tongue and mucous membrane of the anterior part of the mouth that began within two weeks after he stopped smoking in 1954. The individual lesions took about three weeks to heal and he was never free of them. Eating and speaking were very difficult because of the pain. The patient started to smoke again in August 1956, and within two or three days the ulcers disappeared. From then on, he had occasional small single ulcers which disappeared in two or three days. He did not again stop smoking. He regularly smoked filtered cigarettes but said he believed that the brand was not a factor. He was unable to estimate the minimum number of cigarettes associated with the control of the ulcers.

There were no other symptoms suggestive of allergic disease nor were there any inciting or aggravating factors during the two years he was affected.

CASE 3. The patient, a physician 53 years of age, had had recurrent episodes of large, multiple, painful ulcerations of the tongue and oral mucosa, interfering with mastication and speech, since 1943. Individual lesions took almost two weeks to heal. He tried every suggested form of local and systemic medication, including repeated smallpox vaccinations and injections of nicotine, and even had had gold dental fillings changed to silver on the possibility that the metal played a part. No therapy was in any way effective. Although he observed that certain foods would irritate the lesions and increase the pain, the only food that he could certainly and consistently associate with production of ulceration was mushrooms. The patient also had severe allergic rhinitis and for that reason had had complete skin testing for allergens in 1947. His symptoms were perennial and the substances to which his skin reacted were mainly environmental. Results of tests with foods were equivocal, with no strongly positive response to any, including mushroom. Allergic desensitization and environmental control brought about decided improvement of the rhinitis but had no effect upon the aphthae.

In light of the experience in Case 1, the patient, who had not smoked since 1930, was advised to smoke cigarettes. Relief was immediate, dramatic and lasting. The patient found that he had no severe recurrence if he regularly smoked about five cigarettes a day, and he said that although he smoked unfiltered cigarettes as a matter of preference, he believed neither the brand nor the presence or absence of a filter affected the result. Small vesicles developed on the tongue occasionally, but never on the oral mucosa. They disappeared when he smoked more frequently. In 1957 the patient stopped smoking and the ulcerations recurred in two days. They did not subside until some ten days after he resumed smoking.

CASE 4. The patient, 38-year-old man, had been a very casual smoker between the ages of 22 and 33. During that time he had infrequent small canker sores which were never troublesome. He stopped smoking at the age of 33. Two years later severe canker sores developed. They were large and painful, always on the mucous membrane of the mouth, never on the tongue. The ulcers overlapped, and as one would heal another would develop. Speech was so difficult that the patient's work as a minister was hampered. Upon advice he began smoking cigarettes. There was immediate relief and—except for infrequent, small and painless aphthae which lasted only two or three days—no recurrence so long as he smoked regularly. He found that the ulcers recurred in three days if he stopped smoking. Then when he resumed smoking, if there was an early lesion it promptly subsided and did not recur, but a lesion that was fully developed took at least a week to subside. On questioning, the patient could not recall having had any symptoms suggestive of the allergic state, and he knew of no factors which would incite or aggravate the lesions. The relief he

obtained was not associated with any particular brand of cigarettes; if he smoked four or five a day, of any brand, he remained free of symptoms.

DISCUSSION

The association of relief of recurrent aphthous stomatitis with the smoking of cigarettes is entirely empiric. I cannot even conjecture a logical explanation of it, whether chemical, metabolic or allergic. The occurrence of occasional aphthae despite smoking suggests that the effect—if effect it be—is suppressive at best. One of the four patients had allergic disease, quite distinct from the oral ulcers, which was not influenced by smoking. Skin tests with acetone-precipitated extract of tobacco prepared in our own laboratory did not show any reaction in any case and should logically not be expected to do so. The four case reports are offered only because they seem to indicate a possible therapeutic relationship between cigarette smoking and recurrent aphthous stomatitis which further experience will support or reject.

SUMMARY

In four cases of painful recurrent aphthous stomatitis in persons who had formerly smoked cigarettes, the disease was dramatically relieved soon after the patients began smoking again.

240 South La Cienega Boulevard, Beverly Hills.

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California MEDICINE

For information on preparation of manuscript, see advertising page 2

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EDITORIAL

Relative Value Study

SOME FOUR YEARS AGO the California Medical Association published its Relative Value Study. This was a compilation to show the value relationship that each specific medical, surgical, radiological and laboratory service performed by physicians bears to other specific services in the same category. The values for the various services were expressed in units, not in dollars.

This study, representing the first large-scale review of this type in the country, has subsequently been used by individual physicians, by medical service organizations, by insurance companies and by various departments of federal and local governments in establishing professional fees to be assessed or paid under a large number of beneficiary programs.

Not only did the Relative Value Study show how the value of one service compared with another; it established a standard of nomenclature and coding of services which has now been adopted nationwide by the interests listed above.

No service performed by a state medical association in recent years seems to have the nationwide impact and acceptance that the Relative Value Study has engendered. Its adherents have been legion, its detractors conspicuous by their absence.

This month the Association will publish a new edition of this work. Based on returns made in 1958 by more than 7,000 participating physicians, the new studies will bring the work up to date and reflect various changes from the original which were indicated as necessary.

The updating process takes into consideration, of course, the technical changes which have taken place in the practice of medicine in the past three or four years. Certain procedures which are outdated have been dropped. New procedures developed and generally accepted in the profession have been added. Nomenclature has been refined where indi-

cated. Some relative unit values have been adjusted upward or downward in accordance with current evaluations and practices.

In several sections of the new volume a comparison between the 1957 revised edition and the 1960 copy will, at first blush, make it appear that the studies are contributing directly to the process of inflation. Some unit values will appear to be considerably higher than were shown in the 1957 book. On closer inspection, however, and in accordance with the instructions which will be a part of the publication, the new values will be found to be in line with the former version but assembled in a different manner.

For example, values for anesthesia services have been refigured to show the changing trend in anesthesia from a nursing to a medical service. Where the former values for anesthesia were based solely on a time basis and provision was made for additional visits, the new set of values is developed on the basis of a unit value for availability (which includes necessary pre- and postoperative visits) and on the time consumed in the actual administration of the anesthetic.

In the study on surgery, the old volume listed many unit values on the basis of the surgical procedure and two weeks' aftercare, providing additional unit values for further home, hospital or office visits beyond the two weeks. The makers of the new study realized that medicine is not practiced in that way and so set surgical unit values to represent the procedure itself and the normal period of aftercare. Where one surgical procedure may require only two weeks of postoperative care, another may take six or nine months. The new study will reflect these varying periods of aftercare by assigning to each procedure the current unit value for both the procedure and the follow-up services. Where the difference in unit values might appear extreme in the simple comparison of the old and new editions, the actual change will be little or

nothing, since the larger number of units covers a more comprehensive service.

It is true that the values used for surgical procedures have been increased in some instances. Where this has been done, the basis is the information supplied by the 7,000 respondent physicians as to their current practices. Obviously, increased costs encountered in the past few years are reflected in the returns from these practicing physicians.

Physicians, insurance executives, governmental department heads and other "professionals" using the 1960 Relative Value Study will readily recognize the changes in compilation between the old and the new versions. They will read the instructions for use of this large and important work. Others who may glance only at the figures shown for specific values may readily believe that this is an attempt to jack up the costs of medical service. For this latter group, we can only suggest that they be advised to read the whole publication before jumping at ill-advised and baseless conclusions.

All in all, the new Relative Value Studies seem destined to take their place immediately in the field of medical economics. There is every reason to believe that their use will be widespread and their worth immeasurable for thousands of physicians and others

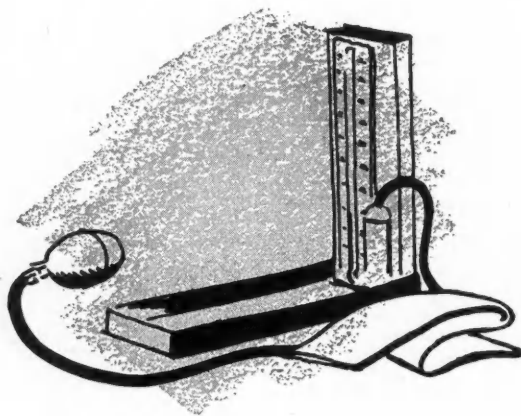
who have need of a set of standards on which to develop a better approach to medical care costs.

The Council of the California Medical Association was quick to recognize the importance and the validity of this new study. It was prompt in approving it and in ordering its immediate production and distribution. Copies will be sent to all members of the Association and made available to others.

Beyond the immediate usefulness of the new Relative Value Studies is the organization which could and did produce it. The combination of a dedicated and thorough committee, several thousands of participating physicians, a competent staff in the Association and the contributions by physician and actuarial consultants has been necessary to bring out this work. All are to be congratulated on a splendid job well done.

In addition, plans are being developed by this same group to provide for a continuing review of each of the four so that it may be kept up to date at all times.

The California Medical Association may well be proud of this newest evidence of its interest in the welfare of patients and all those who serve them. It would be difficult to find a better example of unselfish service for the good of all concerned.



Letters to the Editor...

Cranberries et al.

August 17, 1960

Dear Sir:

I agree with the opinion expressed in a recent letter [Letters to Editor, CALIFORNIA MEDICINE, August, 1960, p. 108] that "The public who are exposed to medical propaganda, although they be adult, usually feel, and have a right to feel . . . about their nation's medical leaders [like a trusting child toward an omnipotent and omniscient parent]." But I think that we doctors have a right to help educate the public toward a more scientific viewpoint, instead of catering to their infantile desires and feelings. Our own scientific training and attitude helps us doctors to suspend judgment on the scary dilemmas presented to us by the atomic scientists. Let's try and bring "the public" up to our level, instead of treating them like dependent, unreasoning, easily frightened children.

S. H. SILVER, M.D.

Los Angeles

I too deplore the cranberry business and the chickens [Letters to the Editor, CALIFORNIA MEDICINE, August 1960, p. 108]. I think perhaps the medical profession has not been too courageous in these—has taken the so common attitude that "there might be something in it, so better not stick your neck out too far." You [Dr. Mark Lewis Gerstle, author of the letter] and I both know that neither aminotriazole nor diethylstilbestrol is carcinogenic in the usual sense of the word. We'd prescribe some milligrams of the former and 1/10 mg. of the latter for long term consumption with zero expectation of cancer. The tumors by the former were produced by the patient's pituitary secretion. The latter has a chemical formula that resembles that of some real carcinogens. But how get the sovereign people to work on their Congress to get a zero-tolerance law amended except by presenting them with the controversy? The unhappiness of having to make decisions when advisors disagree is the price that the sovereign has to pay for the right to run his own state.

I quite agree that the President needs more and better scientific consultants and wiser scientific advice. But the scientific advisor to the people is every scientist who will speak to them (if they'll listen). So the cure for the ill you write of is to have the scientists speak up. And the silver lining in the dark

cloud of conflicting opinions is that it inclines the people to listen.

The more security we Americans achieve, the more we value security. We're becoming valetudinarian!

Don't you know that the record of the rocks is clear—progress is made in times of stress.

I'll quote Herbert Hoover: "What do you want, comfort or accomplishment?"

San Francisco

R. R. NEWELL, M.D.

August 27, 1960

Dear Sir:

The August, 1960, issue of CALIFORNIA MEDICINE devoted to nuclear fallout brings up the question which should occur to all physicians who do obstetrics.

In an area such as the Los Angeles-Orange counties area, what would happen to those pregnant women who were at or near term, should the bomb hit this area? Hospital space would be taken up with the critically injured, and the uninjured would most probably be denied the use of hospital facilities.

The education of the public to use the physiologic squatting position for delivery would make such a situation much easier to bear for the women concerned.

A committee from the A.M.A. and the U. S. Public Health Service which included Dr. Paul Hodgkinson, obstetrician in chief of the Henry Ford Hospital in Detroit, has written a do-it-yourself pamphlet for such an emergency. This pamphlet is, I am told, available probably through the U. S. Public Health Service. It would seem that with an actual bombing, it would be a little late to attempt to distribute such a pamphlet. These pamphlets should be in the hands of women right along with the first packet of sample prenatal vitamins.

It is not very probable that women in general would use such information to deprive physicians in general of income. This is the only reason that I can think of which would be brought up opposing such distribution of this information. Giving the information now may make the plight of some women much more secure were the attack actually ever made.

Congratulations on the excellent articles on the nucleus of the atom, which could affect us all.

Yours truly,

FORREST H. HOWARD, M.D.

Garden Grove, California

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Council Meeting Minutes

Tentative Draft of the Minutes of the 462nd Meeting of the Council, San Francisco, St. Francis Hotel, September 10, 1960.

The meeting was called to order by Chairman Sherman in the Borgia Room of the St. Francis Hotel, San Francisco, on Saturday, September 10, 1960, at 7:30 a.m.

Roll Call:

Present were President Foster, President-Elect Bostick, Speaker Doyle, Secretary Hosmer, Editor Wilbur and Councilors MacLaggan, Todd, Quinn, O'Neill, Kirchner, O'Connor, Shaw, Rogers, Murray, Davis, Miller, Sherman, Campbell, Morrison, Anderson and Teall.

Absent for cause, Vice-Speaker Heron, Councilor Wheeler.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Marvin, Whelan, Bowman and Tobitt and Drs. Batchelder and Miller of C.M.A. staff; Messrs. Hassard and Huber of legal counsel; Messrs. Read, Salisbury and Fraser of the Public Health League; county executives Scheuber of Alameda-Contra Costa, Geisert of Kern, Field of Los Angeles, Grove of Monterey, Brayer of Riverside, Dochterman of Sacramento, Nute of San Diego, Neick of San Francisco, Thompson and Pearce of San Joaquin, Wood of San Mateo, Donovan and Colvin of Santa Clara, Funk of Solano and Blankfort of Marin; Dr. Malcolm Merrill, State Director of Public Health; Dr. Daniel Blain, State Director of Mental Hygiene; Mrs. Eunice Evans of the State Department of Social Welfare; Messrs. Paolini, Wahlberg, Nyren and Heller of California Physicians' Service; William Rogers of the California Academy of General Practice; Angus Crawford, actuary; Drs. Dean Hoskins, Donald Harrington, Elmer Goeel, Thomas Elmendorf, Henry Gibbons, III, Homer Pheasant, Merrill Sisson, Shelby M.

Hicks, Eugene Hopp, John Schaupp, Malcolm Watts, J. Philip Sampson and others.

The chairman announced the resignation of Councilor Byron Gifford for reasons of health and, on motion duly made and seconded, it was voted to accept the resignation with regret and with best wishes for Dr. Gifford's improvement in the state of his health.

The chairman announced that the delegates of the Fourth District had selected Dr. James W. Dalton of Santa Barbara to succeed Dr. Gifford. On motion duly made and seconded, it was unanimously voted to appoint Dr. Dalton as Councilor for the Fourth District, to serve until the 1961 Annual Session. (Dr. Gifford's term of office ran until 1962.)

1. Minutes for Approval:

On motion duly made and seconded, minutes of the 461st meeting of the Council, held July 9, 1960, were approved.

2. Membership:

(a) A report of membership as of September 7, 1960, was presented and ordered filed. It was announced that the membership will entitle the Association to an additional delegate to the American Medical Association in 1961.

PAUL D. FOSTER, M.D.	President
WARREN L. BOSTICK, M.D.	President-Elect
JAMES C. DOYLE, M.D.	Speaker
IVAN C. HERON, M.D.	Vice-Speaker
SAMUEL R. SHERMAN, M.D. . . .	Chairman of the Council
RALPH C. TEALL, M.D.	Vice-Chairman of the Council
MATTHEW N. HOSMER, M.D.	Secretary
DWIGHT L. WILBUR, M.D.	Editor
HOWARD HASSARD	Executive Director
JOHN HUNTON	Executive Secretary

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ED CLANCY Director of Public Relations

Southern California Office:

2975 Wilshire Boulevard, Los Angeles 5 • DUmkirk 5-2341

(b) On motion duly made and seconded, 88 delinquent members whose dues had been received, were voted reinstatement.

(c) On motion duly made and seconded in each instance, 22 applicants were voted Associate Membership. These were: Gerard Chase, Kenneth F. Ernst, Helen May Safford, Alameda-Contra Costa County; Ray H. George, Leonard Jason Nevis, Francis J. Sullivan, Nancy Telfer, Los Angeles County; Wm. Brown Beach, Jr., Paul H. Guttman, Edward Rudin, Sacramento County; Joseph W. Dennis, San Bernardino County; Paul Freeman, Alan Goldfien, Pauline R. Langsley, San Francisco County; Bela Krausz, John LeValley, Rachel Rafferty, Cesare Reyneri, Santa Clara County; Robert B. Radl, Santa Cruz County; Richard C. Bartman, Sonoma County; Samuel M. Ramer, Stephen E. Stephens, Ventura County.

(d) On motion duly made and seconded in each instance, three applicants were voted Retired Membership. These were: Herbert O. Bames, Los Angeles County; John W. Warren, San Diego County; Wilhelm Waldeyer, San Francisco County.

(e) On motion duly made and seconded in each instance, reductions of dues for two members were voted.

3. *Unfinished Business—Conference of County Officers:*

Councilor Todd, chairman of a special committee, reported that February 11, 1961, and Los Angeles had been approved by the committee as the time and place of the 1961 Conference of County Society Officers. The committee recommended that five representatives of each society be invited, to include the president, president-elect, secretary and two others, preferably members of the House of Delegates. On motion duly made and seconded, these proposals were voted approval.

Dr. Todd also presented a proposed program for the conference, including principally out-of-state speakers representing various organizations and built around a theme of the socio-economic prognosis of medical practice. On motion duly made and seconded, it was voted to approve this program in principle, to leave the timing of the conference flexible and to provide for a request to the Finance Committee if additional funds are required.

4. *Commission on Medical Services:*

Chairman Harrington of the Commission on Medical Services discussed the development of the current review of the Relative Value Studies and further discussed the proposal that dual levels be developed as differentials in the services of specialists and non-specialists. On motion duly made and seconded, it was voted that continuing study be

given to the matter of duality, that consideration be given to such a program developed in Santa Clara County and that an ad hoc committee be appointed for such study.

Dr. Dean Hoskins, chairman of the Committee on Fees, presented the revised version of the Relative Value Studies, based on returns from 7,000 physicians which had been subjected to both actuarial and consultant review. On motion duly made, seconded and voted, the studies as presented were accepted and Dr. Hoskins and the staff were instructed to proceed with the production and distribution of a new publication. It was noted for the record that Councilor O'Connor voted for acceptance but disapproved the use of consultants in the compilation of the values shown.

On motion duly made and seconded, it was voted to instruct the committee to develop plans which will permit a continuing review of these studies for the purpose of maintaining them on an up-to-date basis, the committee to report on such plans at the earliest possible date.

5. *State Department of Mental Hygiene:*

Dr. Daniel Blain, State Director of Mental Hygiene, gave a detailed report on the program and plans of his department. He reported that the department is currently operating on an annual budget of about \$140,000,000, that it has 20,000 employees, or 20 per cent of the total employees of the state, that there are 47,000 beds in state hospitals, the daily census is about 45,000 patients and the yearly total about 60,000 patients. By way of comparison, New York State operates 86,000 beds, handles about the same number of annual admissions and discharges and costs run about \$250,000,000 annually.

Dr. Blain stated that about 60 per cent of all psychiatric care in California is now handled by public agencies and 40 per cent by private resources. The department, he said, is working to reduce the state total to about 50 per cent of the overall figures and encourage private facilities to handle a like amount.

The department, he said, is operating about \$2,500,000 in research a year, and is faced with a shortage of physicians, nurses and other trained personnel. He expressed the belief that with adequate personnel the department could continue to serve the growing population of the state without the construction of additional hospitals.

Dr. Blain distributed an outline of the department's program and asked general approval of it as well as continued cooperation of the Committee on Mental Health. It was agreed to approve these requests.

On motion duly made and seconded, it was voted to have the chair appoint a committee to meet with Dr. Blain and local mental health officers in Sacramento on September 29. Dr. Sherman appointed Drs. Teall (chairman), O'Connor, Knox, Auerback and Kilroy, together with Mr. Hassard and other staff members.

A report from Dr. Auerback was received for information only.

6. State Department of Public Health:

Dr. Malcolm Merrill, State Director of Public Health, reported that 247 poliomyelitis cases have been reported this year, compared with 196 at this time in 1959, and that ten deaths have been recorded, compared with four last year. He asked that the ad hoc committee on poliomyelitis be reactivated in light of the anticipated approval of the live virus method of prevention. It was agreed that this committee be reactivated.

Dr. Merrill also reported that in the past two years outbreaks of influenza have occurred before public health authorities have been able to recommend preventive measures. The U. S. Public Health Service, he said, will soon recommend the use of flu vaccine for selected groups who display a number of clinical conditions.

Federal funds for hospital construction will amount to about \$8,333,000 this year, Dr. Merrill said, a new record high. The Hospital Council of the department will meet in San Francisco on October 6 and 7 to allocate these funds and state funds.

In response to a question, Dr. Merrill replied that the Cancer Council has held three meetings, has outlined plans for investigational and other procedures and has now made demand on one clinic group in the southern area for clinical records and other detailed information in support of the claims made by the group. Such demand, he pointed out, is the initial legal requirement in investigating the clinical efficacy of claimed methods of therapy in cancer.

7. State Department of Social Welfare:

Mrs. Eunice Evans of the State Department of Social Welfare discussed the provisions of the Mills Bill, recently passed by Congress and awaiting the President's signature, which is expected. Under one of the two parts of the bill, she said, it appears to be possible to increase funds for medical care of OAS recipients from the present level of \$8 a month to \$12 a month, effective October 1 without the need of state legislation. The department, she said, is considering the provision of eye services, including eyeglasses, and dental and prosthetic devices as added services to this group by the use of these funds.

The second part of the bill, Mrs. Evans said, will require state legislation and, with state matching funds, will make as much as \$12 a month per person available for medical services to a large group of those not now drawing public assistance but in the near-needy classification as to medical care.

Mrs. Evans also reported that continuing study is being given to the health evaluation studies planned by the department.

Dr. Quinn, chairman of the liaison committee to the department, and Dr. Sherman reported that the committee has discussed these problems with Mrs. Evans and the department and has also discussed the feasibility of instituting pilot programs using a prepayment program under California Physicians' Service for beneficiaries of the department.

8. California Physicians' Service:

Dr. Morrison reported that California Physicians' Service has a current membership of 780,000, exclusive of federal employee families, who are estimated to total about 151,000. Operating costs, he said, are running 10.3 per cent of dues income, a reduction from 11 per cent plus a year ago. Dr. Morrison also reported that plans are under discussion which would provide for experimental programs in the fields of deductible hospitalization plus out-patient laboratory services and for psychiatric care.

9. Commission on Public Policy:

(a) Dr. Kilroy, chairman of the commission and chairman of the Committee on Legislation, reported that discussions had been held on two resolutions from the 1960 House of Delegates which had been referred to the commission by the Council. On Resolution No. 23, relating to exemption from legal liability for members of tissue and other committees, it was recommended that the intent of the resolution be activated. On motion duly made and seconded, it was voted to do so. On Resolution No. 37, relating to the uses of hypnosis, it was regularly moved, seconded and voted to refer the subject for further study to the Committee on Legislation and the Medical Review and Advisory Board.

Dr. Kilroy also called on Mr. Read and Mr. Salisbury to discuss the November election procedures.

(b) For the Committee on Public Relations, Dr. Malcolm Watts, chairman, reported that the committee had adopted three basic policies, as follows: (1) to create a public image under which the public would "listen to organized medicine in the same way a satisfied patient listens to his doctor," (2) to develop an indirect approach on matters of socioeconomic messages, and (3) to assist county societies to develop local programs aimed at creating a favorable public image of the profession. On motion

duly made and seconded, these policies were voted approval.

Dr. Watts also discussed the plans made for television presentations, stating that the proposed series "Doctors at Work" would present everyday practices and work in socio-economic messages and that consideration was being given to producing direct socio-economic programs planned for paid station time.

Dr. Watts reported that the director had been directed to provide for an allocation of responsibilities among the personnel and, if needed, arrange for additional personnel and outside consultation. On motion duly made and seconded, these directives were approved.

On the committee's recommendation, it was regularly moved, seconded and voted to urge California Physicians' Service to integrate socio-economic messages in its advertising and to emphasize the "Doctors' Plan" aspect of its service.

The committee also recommended that a mailing list of the home addresses of members be prepared. On motion duly made and seconded, it was voted to approve this proposal in principle and refer it to the Finance Committee for implementation.

The committee also suggested that the Council determine the extent of emphasis which should be placed at this time on the medical problems of the aging population. An ad hoc committee appointed to develop a set of principles on this subject presented, at a later hour, a set of principles which, on motion duly made and seconded, was voted approval.

Dr. Watts also reported that the committee was considering establishing an award for outstanding news reporting on medical matters. He also stated that the committee would like authority to call on the Committee for Emergency Action in case of need. No action was taken on this request.

Mr. Clancy reported on the Public Relations Conference recently held in Chicago by the A.M.A. and also reported that the A.M.A. is preparing a packet of material for the use of students who are preparing essays or debate material in their school courses.

10. Committee on Committees:

Dr. Bostick recommended that the composition of the new Committee on Dangerous Drugs under the Commission on Public Agencies be as follows: William F. Quinn, Los Angeles, chairman; Norman A. Gale, San Diego; Edward R. Bloomquist, Glendale; Edward Jewett, Santa Rosa; Clinton H. Thienes, Los Angeles, and Ralph W. Weilerstein, San Francisco. On motion duly made and seconded, it was voted to approve the appointments and to establish staggered terms of one, two and three years.

Doctor Bostick also presented nominations to fill vacancies on several other committees, all of which were voted approval. Among these were Dr. Wilbur Rogers to succeed Byron Gifford, resigned, on the Committee on Committees, and Dr. J. Norman O'Neill to succeed Dr. Gifford on the Finance Committee.

11. Liaison Committee to State Bar of California:

A report of the committee was presented for informational purposes and it was voted to express to Dr. Francis E. West and the members of his committee the commendation of the Association for the fine work outlined in the report.

12. Liaison Committee to California Hospital Association:

Chairman MacLaggan reported that San Diego County had been selected for a pilot trial of the operations of the Guiding Principles for Physician-Hospital Relations. Practically all hospitals in the county, he reported, have expressed their willingness to cooperate.

Dr. MacLaggan also reported that in two other areas the hospitals have requested the Association to furnish a team of inspectors under this program, on the basis that effective and objective inspection teams on a local basis require time to develop. He suggested that the present committee, which includes Drs. E. E. Wadsworth, Jr., and Bert Halter should constitute the state team for this purpose at the outset but that other names should be added in all parts of the state to accommodate further requests of this type. On motion duly made and seconded, this suggestion was voted.

Dr. MacLaggan also suggested that county societies be requested to approve the Guiding Principles and it was agreed to make this request.

13. New Business:

(a) Dr. MacLaggan presented a request of the San Diego County Medical Society for reconsideration of an earlier Council action which approved the writing of coverage by California Physicians' Service where members of a group might be located in more than one county. On motion duly made and seconded, it was voted to refer this request to the Commission on Medical Services-C.P.S. liaison committee.

(b) Secretary Hosmer presented a request received from the Bay District branch of the Los Angeles County Medical Association for the naming of specific alternates to serve for specific delegates in the House of Delegates. On motion duly made and seconded, it was voted to refer this request to the Speaker and Vice-Speaker of the House of Delegates.

14. *Time and Place of Next Meeting:*

The chairman announced that the next meeting would be held in Los Angeles on October 22. The November meeting, tentatively scheduled for November 12, may be postponed if, in the judgment of the chairman, such meeting is not warranted.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 5:55 p.m.

SAMUEL R. SHERMAN, M.D., *Chairman*

MATTHEW N. HOSMER, M.D., *Secretary*

Solo Practice

Advantages and Disadvantages as It Affects the Patient, the Physician and Medicine

JUST AS no man is an island, sufficient unto himself, so no doctor practices truly alone. There is no such thing as a completely solo practice with no contact or relationship of one doctor to his professional colleagues.

It is popular to assert that the growth of knowledge and skill in medical practice has made it impossible for one man to encompass all medical knowledge, that medicine must be practiced by a group of doctors, each with special skills and interests, in order to bring to bear all medical knowledge on the problems of the sick person.

Both assertions are so distorted as to obscure the truth. While it is surely true that no one man can know all of medicine today, it is very probable that at no time in history could any one man do so. Ogg, the cave medicine man, often must have felt the need for consultation with his professional brothers; all recorded medical history, from the earliest dates, makes reference to men of medicine with special skills or interests which they shared with their colleagues to resolve the problems of the patient. On the other hand, it is very doubtful that any group medical practice yet devised has doctors so highly selected and so widely varied that it can muster all facets and all existing medical knowledge for every challenge presented to it.

The differences between solo and group medical practice are not differences in kind, but only differences in degree and in application.

Theorists seeking a medical Utopia, with the highest motivation, imagine that a type of medical organization consisting of a wide spectrum of medical specialists, working under one roof, with a formal and tight mutual financial arrangement, must be greatly superior to what appears to be a rather hit-or-miss, haphazard relationship of doctors in solo private practice.

Yet, the more discerning of medical philosophers have recognized that nearly all California doctors

practice in a loose sort of medical group. Each doctor consults freely on an informal basis and often refers patients on a more formal basis to medical specialists in whose skill and judgment he has confidence. Perhaps the greatest advantage of such an arrangement is its flexibility, and its opportunity to tailor the study and treatment to the needs of a particular person at a particular time.

Theorists following the lead of the very thoughtful students who prepared the 1932 study on the Medical Care for the American People, under the committee on the costs of medical care (led by California's own Ray Lyman Wilbur), suggest that some hidden adverse thing opposes and delays the logical growth and development of medical group practice. They seem to believe that vigorous subsidy by the government, with money, with facilities, or simply with prestige and patient referral, is necessary. This would allow formation and growth of medical groups, which they regard as essential to hasten the millennium of better medical care for everyone.

Yet, there has been no artificial impediment to the growth of such medical group practice. Many of the world's greatest group clinics, such as the Mayo's, the Crile's, the Lahey's, or our own California examples, such as the Palo Alto Clinic, have been developed (nearly always as the expansion of solo practice of one or more outstanding doctors) under an atmosphere of free enterprise, and have prospered and done well. On the other hand, while many new medical groups are formed each year, a large number of these groups last only a few years and then disband. Their dissolution has arisen in some instances from financial insecurity or from lack of public support and from the fact that their doctor members find themselves happier in the freedom of solo practice and seem to feel that in solo practice they are able to bring a higher and more

personal quality of care to the majority of the problems of the patients they serve.

Outstanding medical group practices excel in ferreting out the rare and obscure disease processes. Yet, this excellence stems as much from the caliber of the members of the group as from the group practice mechanism itself.

In many instances, a type of group practice develops because of economic compulsion, as in medical schools, county hospitals, and military medical organizations, which lump the patients together for administrative convenience and control. Yet, the most casual study shows wide variation in the quality and cost of medical services provided by such groups, from very poor to very good.

It is obvious that group medical practice is more easily dominated by nonmedical sponsoring groups than is solo practice. It may well be that the recent resurgence of interest in artificial stimulation of group practice arises at least as much from a desire to dominate as from general concern for the patient.

And when group practice is combined with a financially captive group of patients as in certain current prepaid group clinic plans (and when such clinics are quick to proclaim that a sick patient is really a liability to them) the great body of doctors is rightly suspicious and must insist, on the basis of repeated earlier experiences, that the best interests of the patient and the public dictate a go-slow, wait-and-see attitude.

It is occasionally argued that the group practice arrangement is cheaper, since overhead is shared, supporting personnel is less, and facilities are used more efficiently. Several studies by group clinic managers purport to show that actual unit costs are, in fact, less, "where equivalent services are offered." But just here seems to lie the rub. There is a widespread feeling among doctors that many, if not most, group clinics provide a great many unnecessary and often overlapping services; these are occasionally provided for financial return, more often from a desire to be overly thorough-going and analytical to the point of scientific research at the patient's expense. It is widely recognized that doctors in group practices are paid at least as well, often better, than those in private practice.

Whatever the reason, the experience of many patients is that their own personal costs are not less, but greater under group practice.

Medicine is not an exact science, neither is it a commodity. It is an art, bringing to bear on the complex problems of a single human being a great variety of scientific disciplines and a psychological and emotional approach, of understanding and human appraisal, that is vital to the well-being of the patient. The application of this art defies analysis or definition, but is a very important and tangible

thing in the practice of medicine, and an extremely important element in the patient's ultimate recovery or better adjustment to the world in which he lives. It is a highly personal thing.

Patients have come more and more to appreciate and to seek out the personal physician, the doctor whom they like and respect and who understands them, who is well versed in the disciplines of his art, and who can apply or enlist, as a guide in the confusing maze of medical specialism, any current knowledge which will be helpful. This "personal physician" may be a specialist in any field of medicine or he may be a general practitioner, he may work in a rigidly defined and circumscribed group practice or in the more flexible loosely adherent group association which we call solo practice. His effectiveness, like that of all physicians, is largely owing to the kind of person he is, the kind of training he has had, his motivations and his conscience, rather than to the type of organization with which he is associated. In short, it is the quality of the doctor himself rather than his association with group or solo practice, that is the determinant of his results.

It is vital that the doctor study the sick person, not the disease, and not the welfare of the doctor's own associates. The most important thing a patient can buy from any doctor is the doctor's personal responsibility toward him. This should not be alienated or diluted by a concurrent sense of loyalty or financial responsibility to other physicians with whom he has developed a more or less artificial relationship.

A very important element in the personal physician relationship is the freedom of the patient to choose or to discharge his physician. This becomes very much simpler and less painful to both parties under a solo system. Satisfaction of the immediate needs of the patient during the night or on holidays or week-ends is much better related to personal care under a solo system.

It has been repeatedly demonstrated that large and outstanding group practice clinics still have a hard time coping, on an economical day-by-day basis, with the routine illnesses of the people in their immediate communities. This comes partly from the division of loyalty or responsibility and the lack of personal relationship, and partly from the ponderous effort to use a cannon or even an atom bomb to do the job of a rifle.

Group practice is valuable. It has much to contribute. So does solo practice. And it is neither accident nor the result of a deep conspiracy of opposition, that the solo practice of medicine still constitutes the principal method of supplying physician services in the United States and in California. It

would appear that this is the natural outgrowth of the peculiar interpersonal relationship that is inherent in medical practice.

Doctors are still free to associate themselves in group practice without stigma or sacrifice. When they do, their lives are often more placid and they are often better paid than those doctors in solo practice. But no artificial support of one kind of practice or another, whether through government intervention, propaganda, or subsidy, labor union, employer groups or any other mechanism, is necessary or desirable.

Only in the free competition of the open market may one form or another of medical organization

flower or fade as the consumer patient finds it of greater or lesser value to himself.

Under such freedom, both group and solo medical practice will continue to exist and serve the public. Relative emphasis on one or the other form will shift or vary from good times to bad, from youth to old age, from urban to rural, or from industrial to agricultural. It is proper that this should be so. But artificial "rigging" of this balance offers no promise of increased quality, decreased costs, more widespread and equitable distribution or more satisfactory medical service for the people of California.

RALPH C. TEALL, M.D.

DWIGHT L. WILBUR, M.D.

Federal-State Medical Care

The Expanded Program for Needy and Near-Needy Aged

CALIFORNIA's participation in the increased amounts of Federal Government money that can be granted to states for medical care of the needy and near-needy aged as provided by a recent amendment to the Social Security Act (H.R. 12580, Public Law 86-778) must be developed in two phases. First, it was possible for California to qualify immediately—effective October 1 this year—for additional funds for the medical care of Old Age Security recipients. The second phase, which provides for the payment of medical bills for persons not receiving Old Age Security payments but who are unable to take care of all of their health expenses, cannot be implemented in California until the State Legislature passes enabling legislation and provides funds to be matched by the Federal Government.

Under the medical care program for Old Age Security recipients, which does not need state legislative action for implementation, the revised Social Security law provides that the Federal Government will contribute half of any amount up to \$12 per person per month that the state pays to medical vendors for care of persons covered by the program. Under the present authorized medical care program in California, between \$6 and \$7 per person per month is being expended. This program provides for certain medical office and home visits and for the purchase of certain prescribed drugs on a limited "approved" list.

In its first discussions of the increased amounts that become available from the Federal Government on a matching basis under the Social Security Act amendment, the California State Department of

Social Welfare recommended to the Medical Care Advisory Committee, on which the California Medical Association has representation, that there are substantial unmet medical care needs, among them: (a) Eye care, (b) dental care, (c) more adequate provision for necessary drugs, (d) provision for some office surgery, (e) some support of rehabilitation services, (f) money for the purchase of prostheses and assistive devices, (g) money for the support of coordinated hospital and home care programs, (h) money for the support of some home nursing service under the supervision of physicians.

The information available convinced the Advisory Committee that all of these areas appear to be worthy of support. The Department of Social Welfare is to develop estimates of the cost of providing these various services and to formulate necessary rules to control the program both as to quality and budgetary limits. The date when these additional areas of medical care can be entered will depend upon many factors. It is reported that perhaps the earliest addition to the program would be eye care.

The federal law provides that these programs shall be developed on a state-wide plan and administered by a single agency in the state. In California, the agency of administration is the State Department of Social Welfare. The amendments specified that the following types of care and services for the needy and near-needy individuals 65 or over shall be provided:

Inpatient hospital services; skilled nursing home services; physicians' services; outpatient or clinic services; home care services; private

duty nursing services; physical therapy and related services; dental services; laboratory and x-ray services; prescribed drugs, eyeglasses, dentures and prosthetic devices; diagnostic screening and preventive services, and any other medical care or remedial care recognized under state law.

In California, inpatient hospital services are not provided under this plan for Old Age Security recipients, since this care is available through county hospitals.

These amendments to the Social Security Act met with the approval of the A.M.A.'s prime criteria

that any plan should be voluntary and tailored to help those who need it and should have participation by state or county. As the present program is liberalized in California in the next few months, it is anticipated that the various county medical societies will be called upon by the medical directors of the county welfare departments to assist in its proposed development.

Representatives of the profession will be called upon in the months ahead to assist in developing the second phase of the program. The law is broad enough so that such a program might be developed on a prepaid basis.

--- In Memoriam ---

ALBERTY, WATIE MURRELL. Died August 5, 1960, aged 67. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1917. Licensed in California in 1921. Doctor Alberty was a retired member of the San Diego County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

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BUELL, ARTHUR WHITTON. Died in Long Beach, September 4, 1960, aged 80. Graduate of the New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1908. Licensed in California in 1908. Doctor Buell was a member of the Los Angeles County Medical Association.

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CRESS, WALTER WILLIAM. Died August 13, 1960, aged 75. Graduate of the University of Illinois College of Medicine, Chicago, 1912. Licensed in California in 1913. Doctor Cress was a member of the Sacramento Society for Medical Improvement.

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HALL, GEORGE JOYCE. Died in Sacramento, August 4, 1960, aged 72. Graduate of Cooper Medical College, San Francisco, 1912. Licensed in California in 1912. Doctor Hall was a member of the Sacramento Society for Medical Improvement.

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HARNER, CLYDE ERNEST. Died in San Diego, June 3, 1960, aged 65, of portal cirrhosis. Graduate of the University of Colorado School of Medicine, Denver, 1920. Licensed in California in 1925. Doctor Harner was a retired member of the Riverside County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

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LOOS, H. CLIFFORD. Died in Los Angeles, August 30, 1960, aged 78. Graduate of Cooper Medical College, San Francisco, 1905. Licensed in California in 1905. Doctor Loos was a member of the Los Angeles County Medical Association.

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MILLS, LLOYD. Died in Rancho Santa Fe, August 12, 1960, aged 80. Graduate of Harvard Medical School, Boston, Mas-

sachusetts, 1902. Licensed in California in 1913. Doctor Mills was a member of the Los Angeles County Medical Association, a life member of the California Medical Association, and a member of the American Medical Association.

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MOHR, CHARLES FRANKLIN. Died in San Diego, August 21, 1960, aged 55. Graduate of the George Washington University School of Medicine, Washington, D.C., 1931. Licensed in California in 1952. Doctor Mohr was a member of the San Diego County Medical Society.

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MUGFORD, IRENE KNOX. Died August 11, 1960, aged 61. Graduate of Stanford University School of Medicine, Stanford-San Francisco, 1927. Licensed in California in 1927. Doctor Mugford was an associate member of the Sacramento Society for Medical Improvement.

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POTTS, ENOS A. Died in Riverside, August 9, 1960, aged 69. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1922. Licensed in California in 1922. Doctor Potts was a member of the Los Angeles County Medical Association.

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ROSE, CARL T. Died in San Francisco, August 18, 1960, aged 65, of cancer. Graduate of Baylor University College of Medicine, Houston, Texas, 1916. Licensed in California in 1921. Doctor Rose was a member of the San Francisco County Medical Society.

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RUMMELL, ROBERT JEFFERSON. Died in Livermore, July 6, 1960, aged 63, of acute myocardial infarction. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1922. Licensed in California in 1952. Doctor Rummell was a member of the Alameda-Contra Costa Medical Association.

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SMITH, W. (WILLIAM) JEWELL. Died in Fresno, September 12, 1960, aged 60. Graduate of Northwestern University Medical School, Chicago, Illinois, 1929. Licensed in California in 1929. Doctor Smith was a member of the Fresno County Medical Society.

CALIFORNIA MEDICAL ASSOCIATION

Annual Meeting

Ambassador Hotel
LOS ANGELES

April 30 to May 3, 1961

Papers for Presentation

If you have a paper that you would like to have considered for presentation, it should be submitted to the appropriate section secretary (see list on this page) no later than November 15, 1960.

Scientific Exhibits

Space is available for scientific exhibits. If you would like to present an exhibit, please write immediately to the office of the California Medical Association, 693 Sutter Street, San Francisco 2, for application forms. To be given consideration by the Committee on Scientific Work, the forms, completely filled out, must be in the office of the California Medical Association no later than November 15, 1960. (No exhibit shown in 1960, and no individual who had an exhibit at the 1960 session, will be eligible until 1962.)

Medical Motion Pictures

The daytime Film Symposiums which proved so popular during the 1959 and 1960 sessions will be continued in 1961. Evening film programs will be planned for doctors, their wives, nurses and ancillary personnel.

Authors desiring to show films should send their applications to Paul D. Foster, M.D., California Medical Association, 2975 Wilshire Blvd., Los Angeles 5. All authors are urged to be present at the time of showing as there will be time allotted for discussion and questions from the audience after each film.

Deadline: December 1, 1960.

PLANNING MAKES PERFECT
AN EARLY START HELPS

SECRETARIES OF SCIENTIFIC SECTIONS

- ALLERGY** Gardner S. Stout
39 North San Mateo Drive, San Mateo
- ANESTHESIOLOGY** Gilbert E. Kinyon
5252 Chelsea Avenue, La Jolla
- DERMATOLOGY AND SYPHILOLOGY** . . Paul M. Crossland
1120 Montgomery Drive, Santa Rosa
- EAR, NOSE AND THROAT** Marvin W. Simmons
1020 East McKinley Avenue, Fresno
- EYE** Floyd M. Bond
625 Broadway, San Diego 1
- GENERAL PRACTICE** A. J. Franzl
3620 Army Street, San Francisco 10
- GENERAL SURGERY** William P. Mikkelsen
1930 Wilshire Boulevard, Los Angeles 57
- INDUSTRIAL MEDICINE AND
SURGERY** John H. Leimbach, Jr.
525 Golden Gate Avenue, San Francisco 1
- INTERNAL MEDICINE** Clifford B. Cherry
2400 Beverly Boulevard, Los Angeles 57
- OBSTETRICS AND GYNECOLOGY** . . . Edward F. Healey
711 D Street, San Rafael
- ORTHOPEDICS** Bret W. Smart
2929 Summit Street, Oakland 9
- PATHOLOGY AND BACTERIOLOGY** . . George J. Hummer
1328 22nd Street, Santa Monica
- PEDIATRICS** Harry O. Ryan
194 North El Molino, Pasadena 4
- PHYSICAL MEDICINE** S. Malvern Dorinson
450 Sutter Street, San Francisco 8
- PSYCHIATRY AND NEUROLOGY** . . . {Robert E. Wyers
Mark Zeifert
Psychiatry: Robert E. Wyers, Metropolitan Hospital, Norwalk
Neurology: Mark Zeifert, 1065 S Street, Fresno 21
- PUBLIC HEALTH** Ellis D. Sox
101 Grove Street, San Francisco 2
- RADIOLOGY** John R. Bryan
450 Sutter Street, San Francisco 8
- UROLOGY** Sam Peck
233 A Street, San Diego 1

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, M.D., M.P.H.
Director, State Department of Public Health

WITHIN THE NEXT FEW DAYS the department will reactivate its Ad Hoc Advisory Committee on the Prophylaxis of Poliomyelitis in anticipation of the licensing of the live virus vaccine for use in this country. The committee was disbanded in February, 1959, after five years of arduous duty.

The Surgeon General in August announced that research and development work on the live virus vaccine had advanced to the point at which the U. S. Public Health Service considered it desirable to license the product for manufacture in the United States.

He reported that recommendations regarding dosage and mode and frequency of administration will be available shortly. It is not anticipated that large amounts of the vaccine will be available for use before mid-1961.

The Surgeon General's advisory committee pointed out the need for planned use of live vaccine and commented, "It appears probable that only a unified national program which utilizes each of the available types of vaccine to its best advantage can accomplish the total prevention of outbreaks."

The advisory group further said the live virus vaccine will be more appropriate for use on a community, rather than on an individual, basis. For the time being there will be a need for both the live and killed poliomyelitis virus vaccine.

Since the first of the year a total of 268 cases of paralytic poliomyelitis have been reported in California, which stresses the importance of continuing with full intensity the present immunization programs using killed Salk vaccine.

Detailed case histories have been received so far on 232 cases. More than 80 per cent of the patients were inadequately vaccinated. Fifteen per cent had received three doses and 4.3 per cent had received four or more doses. These proportions follow closely those found by the U. S. Communicable Disease Center in its analysis of nationwide data.

Immunization against influenza was recommended by the State Board of Public Health for Californians over the age of 65, for pregnant women, and for persons of all ages who have chronic debilitating diseases.

During the first quarter of this year more than 37,000 deaths from all causes were recorded in the state, approximately 3,000 more deaths than were expected on the basis of experience of previous years. Almost 90 per cent of these 3,000 "excess" deaths were in persons over the age of 65. About 1,000 of these deaths were directly due to influenza and pneumonia, and undoubtedly these two diseases were contributing factors in many of the other causes of deaths.

The board action followed similar recommendations from the U. S. Public Health Service, which stated recently that experience with excess mortality during the three most recent waves of influenza indicates the desirability of routine annual immunization for populations of particular risk.

In the past, influenza immunization programs have tended to be intermittent, predominately in response to public concern before and during epidemic periods. Such epidemics tend to recur in unpredictable cycles, but an endemic incidence occurs continually.

Influenza may not be more likely to attack persons in the groups specified above, but in these persons it is more likely to be a threat to life. For these reasons immunization of the specified high risk groups is recommended to begin now and to be continued annually, regardless of the predicted incidence of influenza for a particular year.

The State Board of Public Health in its recent Berkeley meeting also adopted regulations pertaining to the sanitation, healthfulness and safety of public swimming pools.



WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

Another Worthwhile Project

IT IS MY PLAN, from time to time, to present to the doctors of California, through this page, reports of some of the county auxiliary activities—so that they may become more aware of them and the important role that they play both in public relations and community services at the local level.

Recently it was my privilege to present a report on a most worthwhile project of the San Diego County Auxiliary. This was called Health Career Conference. It is my pleasure this time to recount to you another stimulating project inaugurated by the San Francisco County Medical Auxiliary.

This program, "Meals on Wheels," the first of its kind in the West, has as its purpose the provision of prepared meals for people who live alone and who, because of incapacitating conditions, are unable to purchase and prepare the food that they need. Conceived originally as a pilot program, it has been so enthusiastically received that the Auxiliary has been encouraged to expand its provisions.

The *modus operandi* of the program is as follows: An Advisory Board consisting of physicians and interested and experienced lay personnel was organized. The customers pay \$1 for three meals—less, if they cannot afford that amount—and they receive this service twice a week. The Auxiliary hopes to increase this service eventually to five times a week. The San Francisco Homemaker Service screens and recommends the applicants. Meals are prepared by the Auxiliary members according to a diet recommended by the National Research Council and are delivered by Auxiliary members to the recipients. The Auxiliary's report on its "Meals on Wheels" program said that "the program not only meets a

basic need for food, but has supplementary values related to mental health, providing personal contact for the home-bound, offering friendship, and, in addition, quick referral, if need arises."

With this service, patients will be able to leave hospitals earlier and convalesce at home, thereby alleviating the bed shortage, which in turn will be helpful to the medical community. Also, it is an important morale factor for the elderly who can return home instead of to an institution.

Financing for the program came from the Auxiliary and the San Francisco County Medical Society. Because of the excellent publicity which this venture has received, cash donations and offers to help are constantly received by the Auxiliary.

The press and radio, which have been most cooperative, have been an important factor in the good public relations engendered. In addition, San Francisco's Mayor Christopher, an honorary member of the Committee, proclaimed September 25 as "Meals on Wheels Week." Members of the local Auxiliary of the Dental Association have been most cooperative as ambassadors of good-will. It is expected that this program will become a permanent project of the Auxiliary.

It is a privilege to commend the San Francisco Auxiliary on this worthwhile project, for it is another example of the dynamic enthusiasm of our members, and of the cooperative spirit that exists between the Auxiliary and its parent organization, the County Medical Society. It is surely another example of the fact that our County Auxiliaries are not just spinning their wheels.

MRS. SAMUEL GENDEL

President, Woman's Auxiliary to the
California Medical Association

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

The first recipient of the recently instituted **research fellowship** being underwritten by members of the medical staff of Children's Hospital of the East Bay is Dr. Kisaku Satomura of Kyoto, Japan.

Dr. Satomura, who will serve on the staff of the Bruce Lyon Memorial Research Laboratory, did extensive fellowship research in lipid metabolism at Kyoto University. His studies here will be centered on the question of supplying fats intravenously before and after surgical operations.

At the same time it was announced that a grant of \$115,000 had been awarded by the National Institutes of Health for research at the Bruce Lyon Laboratory to find answers to the question: **What makes healthy skin?** The project will be under the direction of Dr. Arild E. Hansen, research director of the laboratory.

LOS ANGELES

Applications are being solicited for **scientific exhibits** for the 1961 Industrial Health Conference which will be held in Los Angeles, April 11 to 13, 1961. Application blanks and information may be obtained from Dr. Homer S. Elmquist, 629 South Westlake Avenue, Los Angeles 57.

SAN DIEGO

The 14th **Annual Postgraduate Assembly**, sponsored by the San Diego County General Hospital, will be held on Wednesday, November 2, and Thursday, November 3, 1960, at the County Hospital. Guest speakers will be Drs. J. Maxwell Chamberlain, E. Gray Dimond, John C. Ullery, Andrew Bassett, Robert Ward, Harris B. Shumacker, Jr., and Eugene R. Poutasse.

The Registrar is Dr. William Tisdale, San Diego County General Hospital, San Diego.

SAN FRANCISCO

Attendance of more than 5,000 public health workers from this country and abroad is expected for the 88th annual **meeting of the American Public Health Association** in San Francisco, October 31-November 4. Presiding over the meeting, the first on the West Coast since 1951, will be Dr. Malcolm H. Merrill, president of the organization and California's State Director of Public Health.

The San Francisco chapter of the **California Medical Assistants' Association** is sponsoring an educational symposium on the general subject of "Psychological Barriers," to be held at the Sir Francis Drake Hotel on Sunday, November 6 from 9 a.m. to 4:30 p.m.

Further details may be obtained from Mrs. Dorothy Sola, 2115 20th Avenue, San Francisco.

GENERAL

Investigators at the University of Michigan School of Public Health are launching a three-year **study of California's state disability insurance** program.

The project will be done in two phases: one will examine what happens to 30,000 disabled workers who exhaust their benefits each year; the other will study administrative and medical aspects of the program.

In the first stage of the study, U-M specialists in public health economics will examine the worker's problems when his disability payments are discontinued after 26 weeks (the maximum coverage). They will explore the **type of medical care** he receives during the period of disability, the source of supplementary aid and the level of employment to which he returns.

This phase of the work will be sponsored by a grant of \$22,425 from the Office of Vocational Rehabilitation in the U. S. Department of Health, Education and Welfare.

The second phase, scheduled to begin next September, will make an overall study of California's disability insurance program with particular attention to fiscal policies, medical features and administration. Evidence will be sought on the relationship between the disability program and benefits from Workmen's Compensation, hospital insurance, and the disability provisions of Federal Old Age and Survivor's Insurance.

Dr. Nathan Sinai (Dr. P.H.) is chief investigator, and S. J. Axelrod, M.D., is director of the U. M. Bureau of Public Health Economics. Dr. Sinai will conduct field investigations in California.

Dr. Wayne Chesbro, Berkeley, and **Dr. Justin J. Stein**, Los Angeles, received a citation "for meritorious service to the people of the United States and the Medical-Health professions for their endeavor in the interest of Civil Defense, Disaster Medical Care, Radiological, Biological and Chemical non-military defense and mass casualty care" from the United States Civil Defense Council at its recent meeting in Minneapolis.

The American Goiter Association, Inc., has announced the opening of competition for the 1961 **Van Meter Prize Award** of \$300 to the essayist submitting the best manuscript of original and unpublished work concerning "Goiter—especially its basic cause." The studies so submitted may relate to any aspect of the thyroid gland in all of its functions in health and disease. The Award will be made at the annual meeting of the association in Philadelphia, May 3-6, 1961. The deadline for entries is January 1, 1961. Details may be obtained from Dr. John C. McClintock, 702 Madison Avenue, Albany 8, New York.

The **California League for Nursing Committee on Careers in Nursing** has compiled a list of courses, workshops and institutes for graduate nurses. The list gives dates, location, fees and where to apply for such courses throughout California. Copies may be obtained by mailing a request, with a stamped return envelope, to: Committee on Careers in Nursing, California League for Nursing, 465 Post Street, San Francisco 2.

The Third Western Sectional Meeting sponsored by the **International College of Surgeons** will be held in Las Vegas, Nevada, beginning with registration on Sunday, November 20, and scientific meetings Monday and Tuesday, November 21 and 22. The annual banquet will be held Monday night at the Riviera Hotel.

Applications for charter membership in the **American Society of Diagnostic Radiology** are now being received. Membership is open to general practitioners and internists who do or may wish to do some types of diagnostic radiology in their offices.

Further information may be obtained from Dr. Louis Shattuck Baer, 411 Primrose Road, Burlingame.

* * *

The **Western Society for Clinical Research** will hold its fourteenth annual meeting in Carmel, January 26, 27, and 28, 1960. Information regarding the meeting may be obtained from the secretary, Dr. William N. Valentine, University of California Medical Center, Los Angeles 24.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to Postgraduate Activities, California Medical Association, 2975 Wilshire Boulevard, Los Angeles 5.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Clinical Traineeships — Anesthesia, Dermatology and Pediatric Cardiology. Dates by arrangement. Minimum period—two weeks. Fee: Two weeks, \$150.00; four weeks, \$250.00.

Neuropathology. Tuesdays and Thursdays, October 18 through December 6. Twenty-eight hours. Fee: \$105.00.

Below-Knee Prosthetics. Monday through Friday, October 31 through November 4. Enrollment limited to 20. Fee: \$125.00.

Proctology—Lecture and Surgery Demonstration. Wednesday, November 30. Nine hours. Fee: \$40.00.

Treatment of Selective Hematologic Disorders. Saturday, December 10. Seven hours. Fee: \$20.00 (includes lunch).

Below-Knee Prosthetics. Monday through Friday, December 12 through 16. Enrollment limited to 20. Fee: \$125.00.

Mexico—Clinical Postgraduate Program (sessions to be held in Mexico City, Guadalajara and Acapulco). January 9 through 22. Twenty-four hours. Fee: \$125.00.

Internal Medicine (Harbor Hospital, Torrance). Thursdays, January 12 through March 30. Twenty-four hours. Fee: \$50.00.

Below-Knee Prosthetics. Monday through Friday, January 23 through 27. Enrollment limited to 20. Fee: \$125.00.

Fractures (Lecture and Dissection). Friday through Sunday, February 24 through 26. Eighteen hours.*

*Fee to be announced.

Psychiatry in Medicine. Friday and Saturday, March 10 and 11. Twelve hours. Fee: \$15.00 (includes one lunch and one dinner).

Office Surgery. Friday and Saturday, April 18 to 19. Twelve hours.*

Israel—Clinical Postgraduate Program (sessions to be held in Jerusalem and Tel Aviv). April 20 through May 15. Thirty-two hours. Fee: \$150.00.

Low Back Pain. Friday and Saturday, May 12 and 13. Twelve hours.*

Common Emergencies in Clinical Practice. Friday and Saturday, May 26 and 27. Twelve hours. Fee: \$40.00.

For information on courses for physicians or ancillary personnel contact: Thomas H. Sternberg, M.D., assistant dean for Continuing Medical Education, U.C.L.A. Medical Center, Los Angeles 24. BRadshaw 2-8911, Ext. 7114.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Advances in Ophthalmic and General Pathology. Thursday through Saturday, November 3 through 5. Twenty-one hours.*

Symposium on Ear-Nose-Throat Problems in Children, Children's Hospital. Saturday, November 5. Seven hours. Fee: \$12.50.

Psychological Problems in Medical Practice. Friday through Sunday, November 11 through 13. Twenty-one hours. Fee: \$10.00.

Retinal Detachment Surgery. Thursday through Saturday, December 1 through 3. Twenty-one hours.*

Symposium on Eye Problems in Children, Children's Hospital. Saturday, January 14. Seven hours. Fee: \$12.50.

Civilization and Man: The Control of the Mind. Saturday through Monday, January 28 through January 30. Twenty-one hours. Fee: \$25.00.

A Course in Pediatrics. Saturday through Monday, February 11 through 13. Twenty-one hours.*

Symposium on Perinatal Problems, Children's Hospital. Saturday, March 11. Seven hours. Fee: \$12.50.

Diagnostic Radiology. Wednesday through Sunday, March 15 through 19. Thirty-five hours.*

Fundamental Practices of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Fee: \$350.00.

For information on courses for physicians or ancillary personnel contact: Seymour M. Farber, M.D., assistant dean, Department of Continuing Medical Education, University of California Medical Center, San Francisco 22. MONTrose 4-3600, Ext. 665.

PRESBYTERIAN MEDICAL CENTER, SAN FRANCISCO

Eye Conference. Each Monday morning.

Didactic Course in Ophthalmology. Each Monday and Wednesday, 7 to 8:30 p.m.

Conference on Cataracts (limited to physicians specializing in Eye or EENT). Wednesday through Friday, November 9 through 11. Fee: \$100.00.

Contact: Arthur Selzer, M.D., program committee chairman, Presbyterian Medical Center, Clay and Webster Sts., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Recent Advances in Medicine. Thursday and Friday, November 17 and 18. Huntington-Sheraton Hotel, Pasadena. Fee: \$25.00.

Nuclear Medicine:

Part I, January. Fee: \$50.00.

Part II, eight weeks. Fee: \$350.00.

Part III, twelve weeks. Fee: \$350.00.

Clinical Hematology. Saturday and Sunday, February 25 and 26.*

Hawaii Course. August 2 to 18.

Cardiac Resuscitation. Each Wednesday by appointment, 4 to 6 p.m. USC Medical Research Building, Room 211, 2025 Zonal Avenue. Tuition: \$30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: \$100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: \$85.00. Physicians may register at any time.

Contact: Phil R. Manning, M.D., associate dean and director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. Capital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

SURGICAL ANATOMY (Dissection, Lectures and Demonstrations):

Thorax, Abdomen, Pelvis. Monday and Wednesday, January 4 through April 12. 121 hours. Fee: \$125.00.

Head and Neck. Monday and Wednesday, April 19 through May 31. Sixty-three hours. Fee: \$75.00.

SURGICAL ANATOMY (Lectures and Demonstrations only):

Thorax, Abdomen, Pelvis. Wednesdays, January 4 through April 12. Twenty-eight hours. Fee: \$50.00.

Head and Neck. Wednesdays, April 12 through May 31. Twenty-four hours. Fee: \$35.00.

Alumni Postgraduate Convention Refresher Courses, March 12 and 13, on the campus of the College of Medical Evangelists at White Memorial Hospital.

Joint Manipulation. Monday through Friday, March 20 through 24. Twenty hours. Fee: \$100.00.

Tropical Public Health. Monday through Friday, April 3 through 28. Fee: \$65.00.

Clinical Traineeships available in clinical departments by arrangement with Postgraduate Division and Postgraduate Chairman of department involved. In addition to those listed other traineeships in other departments can be arranged. Eighty hours minimum. Limited enrollment. Begin when individually arranged.

1. **Anesthesia.** Six months. 250 to 300 hours. Fee: \$350.00.

2. **Internal Medicine.** Two weeks to nine months.

3. **Pulmonary Diseases** (can be arranged).

4. **Traumatology.** One month. 160 hours. Fee: \$125.00.

5. **Urology** (can be arranged).

* Fee to be announced.

For information contact: G. E. Norwood, M.D., assistant dean and chairman, Division of Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-7241, Ext. 214.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTES—1961

Southern Counties, February 2 and 3, El Mirador Hotel, Palm Springs, in cooperation with University of Southern California School of Medicine. *Chairman:* Raymond Tatro, M.D., 1875 North "D" Street, San Bernardino.

West Coast Counties, March 2 and 3, Del Monte Lodge, Pebble Beach, in cooperation with College of Medical Evangelists. *Chairman:* A. F. Kandlbinder, M.D., 835 Cass Street, Monterey.

North Coast Counties, March 23 and 24, Flamingo Hotel, Santa Rosa, in cooperation with University of California, San Francisco. *Chairman:* Milton A. Antipa, M.D., 50 Montgomery Drive, Santa Rosa.

San Joaquin Valley, April 13 and 14, Ahwahnee Hotel, Yosemite, in cooperation with UCLA School of Medicine. *Chairman:* J. Malcolm Masten, M.D., 1051 R Street, Fresno.

Sacramento Valley Counties, June 29 and 30, in cooperation with Stanford University School of Medicine. Location to be announced. *Chairman:* Joel T. Janvier, M.D., 3632 Marysville Road, Del Paso Heights.

AUDIO-DIGEST FOUNDATION

A nonprofit subsidiary of the C.M.A., offers (on a subscription basis) a series of six different hour-long tape recordings covering general practice, surgery, internal medicine, obstetrics and gynecology, pediatrics and anesthesiology. Designed to keep physicians posted on what is new and important in their respective fields, these programs survey current national and international literature of interest and contain selected highlights of on-the-spot recordings of national scientific meetings, panel discussions, symposia, and individual lectures. Audio-Digest Internal Medicine will shortly be available on long-play discs, requiring only a 33 1/3 rpm phonograph to utilize the service. For information contact Mr. Claron L. Oakley, Editor, 1919 Wilshire Blvd., Los Angeles 57, HUbbard 3-3451.

Medical Dates Bulletin

OCTOBER MEETINGS

CALIFORNIA ACADEMY OF GENERAL PRACTICE 12th Annual Scientific Assembly. October 16 through 19. Masonic Memorial Temple, San Francisco. *Contact:* William W. Rogers, executive secretary, 461 Market St., San Francisco 5.

WESTERN ORTHOPEDIC ASSOCIATION Annual Convention. October 22 through 27. Hotel Del Coronado, Coronado. *Contact:* Mrs. Vi Mathieson, executive secretary, 354 21st St., Oakland 12.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS. Jack Tar Hotel, San Francisco. October 26 through 28. *Contact:* A. C. Offutt, M.D., secretary-treasurer, 1330 W. Michigan Street, Indianapolis 7.

ST. JUDE HOSPITAL—FULLERTON 2nd Annual Postgraduate Assembly. October 27 and 28. St. Jude Hospital. *Contact:* B. L. Tesman, M.D., chairman, St. Jude Hospital, Fullerton.

CALIFORNIA SCHOOL HEALTH ASSOCIATION Annual Meeting. October 29 and 30. Hotel Whitcomb, San Francisco. *Contact:* Mr. William H. Wyckoff, secretary, 451 West Joaquin Ave., San Leandro, Calif.

AMERICAN SCHOOL HEALTH ASSOCIATION, San Francisco. October 29 through November 4. *Contact:* A. O. DeWeese, M.D., executive secretary, 515 E. Main St., Kent, Ohio.

AMERICAN PUBLIC HEALTH ASSOCIATION, San Francisco. October 31 through November 4. *Contact:* Berwyn F. Mattison, M.D., executive director, 1790 Broadway, New York 19.

NOVEMBER MEETINGS

SAN DIEGO COUNTY GENERAL HOSPITAL 14th Annual Postgraduate Assembly. Wednesday and Thursday, November 2 and 3. San Diego County General Hospital, North End of Front Street, San Diego. *Contact:* Frank H. Carter, M.D., chairman, 2001 Fourth Avenue, San Diego 1.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE. Biltmore Hotel, Los Angeles. November 2 through 5. *Contact:* Rolla B. Hill, M.D., executive secretary, 3575 St. Gaudens Rd., Miami 33, Florida.

LOS ANGELES PEDIATRIC SOCIETY Annual Brennemann Lectures. November 9, 4 to 10 p.m., and November 10, 9 a.m. to 7 p.m. Ambassador Hotel, Los Angeles. *Contact:* Neil N. Litman, M.D., vice-president, 5830 Overhill Drive, Los Angeles 43.

SAN DIEGO CHAPTER OF THE CALIFORNIA ACADEMY OF GENERAL PRACTICE Scientific Symposium. November 10, 11 and 12. Hotel Riviera, Las Vegas, Nevada. *Contact:* George H. Burkhart, M.D., chairman, program committee, 514 3rd Ave., Chula Vista.

PACIFIC COAST FERTILITY SOCIETY. November 10 through 13, Hotel Tropicana, Las Vegas, Nev. *Contact:* Anah C. Wineberg, M.D., secretary-treasurer, 3120 Webster Street, Oakland.

CALIFORNIA SANATORIUM ASSOCIATION Annual Business, Clinical and Administrative Session. November 12. Olive View Hospital, Olive View, Calif. *Contact:* J. P. Myles Black, M.D., Olive View Hospital, Olive View, Calif.

CALIFORNIA CONFERENCE OF LOCAL HEALTH OFFICERS Fall Meeting. November 14 and 15, Oakland, Calif. *Contact:* Donald S. Davy, M.D., State Department of Public Health, 2151 Berkeley Way, Berkeley 4.

AMERICAN COLLEGE OF PHYSICIANS Southern California Regional Annual Basic Science Lectureship. November 18, California Club, Los Angeles. Dinner and cocktails, 6:30 p.m. Speaker: Melvin Calvin, Ph.D., professor of chemistry, University of California, Berkeley. Subject: "Origins of Life." Members and invited guests. *Contact:* George C. Griffith, M.D., governor ACP, P.O. Box 25, 1200 N. State Street, Los Angeles 33. CApitol 5-3131, Ext. 7-1543.

SOUTHERN CALIFORNIA SOCIETY OF GASTROENTEROLOGY Panel Discussion "Enzymology and G.I. Diagnosis." November 22. Los Angeles County Medical Association. *Contact:* William E. Molle, M.D., secretary-treasurer, 6221 Wilshire Blvd., Los Angeles 48.

1961 MEETINGS

LONG BEACH HEART, CANCER AND TB Third Annual Medical Symposium on Diseases of the Heart, Lungs and Chest. January 18, 12:30 p.m., Long Beach Petroleum Club. *Contact:* Leslie R. Raymond, executive director, 2034 Pacific Avenue, Long Beach.

THIRTIETH ANNUAL MID-WINTER CONVENTION IN OPHTHALMOLOGY AND OTOLARYNGOLOGY. January 23 to 27. Statler-Hilton Hotel, Los Angeles. *Contact:* Norman Jesberg, M.D., treasurer, 500 South Lucas, Los Angeles 17.

FRESNO COUNTY HEART ASSOCIATION Ninth Annual Central California Cardiovascular Symposium. January 27. 8:30 a.m. to 5:30 p.m. Fresno Elks Club, 5080 E. Kings Canyon Road, Fresno. *Contact:* Jack J. Jacobson, M.D., chairman, Professional Services Committee, 1584 N. Van Ness Ave., Fresno.

AMERICAN COLLEGE OF PHYSICIANS Southern California Region, Annual Meeting, in cooperation with Northern California and Nevada, Arizona and New Mexico. Biltmore Hotel, Santa Barbara, February 3, 4, 5, 1961. Abstracts (300 words) of papers for consideration of presentation at the meeting should be sent in triplicate before November 1 to Sherman Mellinkoff, M.D., chairman, scientific program committee, U.C.L.A. Medical Center, Los Angeles 24.

INSTITUTE FOR METABOLIC RESEARCH "Lipid Metabolism in Diabetes and Related Conditions" two-day round table symposium. February 7 and 8, Highland-Alameda County Hospital, Oakland. *Contact:* L. W. Kinsell, M.D., director, Institute for Metabolic Research, 2701 14th Ave., Oakland.

OBSTETRICAL AND GYNCOLOGICAL ASSEMBLY OF SOUTHERN CALIFORNIA, 16th Annual Mid-Winter Clinical Assembly. Ambassador Hotel, Los Angeles, February 13 through 17. *Contact:* Dee Davis, executive secretary, 5478 Wilshire Blvd., Los Angeles 36, WEbster 4-1551.

CALIFORNIA TUBERCULOSIS AND HEALTH ASSOCIATION, California Trudeau Society Annual Joint Meeting. February 19 through 22, Jack Tar Hotel, San Francisco. *Contact:* Executive director, C.T.H.A., 130 Hayes Street, San Francisco.

SOUTHERN CALIFORNIA SOCIETY OF GASTROENTEROLOGY. "Problems and Pitfalls in Differential Diagnosis of Jaundice"—Leon Schiff, M.D., February 27, Los Angeles County Medical Association. *Contact:* William E. Molle, M.D., secretary-treasurer, 6221 Wilshire Blvd., Los Angeles 48.

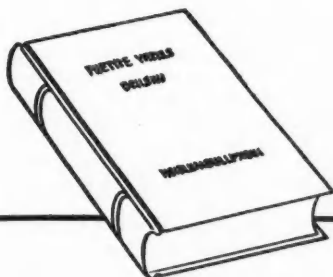
SOUTHWESTERN PEDIATRIC SOCIETY Postgraduate Lecture Series. March 7 and 8, Statler Hotel, Los Angeles. *Contact:* Harry O. Ryan, M.D., secretary, 194 N. El Molino, Pasadena.

COLLEGE OF MEDICAL EVANGELISTS Annual Alumni Postgraduate Convention. Scientific Assembly, Ambassador Hotel, March 14, 15 and 16. *Contact:* F. Harriman Jones, M.D., general chairman, College of Medical Evangelists, 316 North Bailey Street, Los Angeles 33.

INDUSTRIAL MEDICAL ASSOCIATION. Biltmore Hotel, Los Angeles, April 11 through 13. *Contact:* Leonard Arling, M.D., secretary, The Northwest Industrial Clinic, 3101 University Avenue, S.E., Minneapolis 14.

CALIFORNIA MEDICAL ASSOCIATION Annual Meeting, Ambassador Hotel, Los Angeles. April 30 through May 3. *Contact:* John Hunton, executive secretary, 693 Sutter Street, San Francisco 2; or Ed Clancy, director of public relations, 2975 Wilshire Blvd., Los Angeles 5.

MEDICAL STAFF OF CHILDREN'S HOSPITAL OF THE EAST Bay Ninth Annual Clifford Sweet Seminar. May 18, 19 and 20. Hotel Claremont, Berkeley, and Children's Hospital of the East Bay. *Contact:* Seymour J. Harris, M.D., chairman, Lectureship Committee, 401 29th Street, Oakland 9.



THE PHYSICIAN'S *Bookshelf*

SURGERY IN WORLD WAR II—Neurosurgery, Volume II—Prepared and published under the direction of Major General S. B. Hays, The Surgeon General, United States Army. Editor in Chief, Colonel John Boyd Coates, Jr., MC; Editors for Neurosurgery, R. Glen Spurling, M.D., and Barnes Woodhall, M.D.; Associate Editor, Elizabeth M. McFetridge, M.A. Office of the Surgeon General, Dept. of the Army, Washington, D.C., 1959. 705 pages. This volume may be purchased from the Superintendent of Documents, Washington 25, D.C., for \$7.00 per copy.

This is the second and final volume concerning the history of neurosurgery in World War II. The first volume published in 1958 was concerned with the administrative problems encountered in establishing effective neurosurgical service within the Medical Department and also the management of head injuries. This final volume covers injuries of the spinal cord, management of the ruptured intervertebral disc, and peripheral nerve injuries. Chapters and authors in the present volume are listed below:

PART I. INJURIES OF THE SPINAL CORD

- I. Historical Note, by Barnes Woodhall, M.D.
- II. The Zone of Interior by Barnes Woodhall, M.D.
- III. The Mediterranean (formerly North African) Theater of Operations, by Eldridge H. Campbell, Jr., M.D.
- IV. The European Theater of Operations, by R. Glen Spurling, M.D.
- V. The Management of Acute Compound Battle-Incurred Injuries of the Spinal Cord, by Donald D. Matson, M.D.
- VI. Urologic Aspects of Spinal Cord Injuries, by George C. Prather, M.D.
- VII. The Management of Paraplegic Patients in Zone of Interior Hospitals, by Barnes Woodhall, M.D.
- VIII. Management of the Ruptured Intervertebral Disk (Herniated Nucleus Pulposus), by Glen Spurling, M.D.

PART II. PERIPHERAL NERVE INJURIES

- IX. Historical Note, by Barnes Woodhall, M.D.
- X. The Zone of Interior, by Barnes Woodhall, M.D.
- XI. The Mediterranean (formerly North African) Theater of Operations, by Eldridge H. Campbell, Jr., M.D.
- XII. The European Theater of Operations, by Glen Spurling, M.D.
- XIII. Standard Methods of Examination in Peripheral Nerve Injuries, by Frederic H. Lewey, M.D.
- XIV. Anatomic Approaches to the More Commonly Injured Peripheral Nerves, by Warner Wells, M.D., Frederick M. Owens, Jr., M.D., and Francis A. Echlin, M.D.

- XV. Techniques of Peripheral Nerve Repair, by Benjamin Bradford Whitcomb, M.D.
- XVI. Combined Bone and Peripheral Nerve Injuries, by Wade C. Myers, Jr., M.D., and Robert T. Rosenfeld, M.D.
- XVII. Peripheral Nerve Injuries Complicated by Skin and Soft-Tissue Defects, by Stanley E. Potter, M.D., and Edmund John Croce, M.D.
- XVIII. Peripheral Nerve-Vascular Injuries, by Barnes Woodhall, M.D.
- XIX. Causalgia Following Combat-Incurred Injuries of the Peripheral Nerves, by Frank H. Mayfield, M.D.
- XX. Peripheral Nerve Grafts, by Frank E. Nulsen, M.D., Frederick H. Lewey, M.D., and William P. Van Wagenen, M.D.
- XXI. Neuropathologic Changes in Battle-Incurred Injuries of Peripheral Nerves, by William R. Lyons, Ph.D., M.D.
- XXII. Physical Therapy in the Management of Peripheral Nerve Lesions, by William K. Massie, M.D.
- XXIII. Orthopedic Techniques for Use in Irreparable Nerve Injuries, by T. Campbell Thompson, M.D.

In Part I, the management of casualties with spinal cord injury has been outlined in detail. The accomplishments of the paraplegic centers constitute one of the greatest advances in military medicine in World War II. The total care of the paraplegic patient as well as a discussion of the numerous possible complications are clearly presented in an authoritative fashion.

The experience gained in military hospitals regarding the surgical treatment of ruptured intervertebral discs was found to be different strikingly from civilian practice. Once it had been discovered that only a minority of such patients operated upon could be returned to active duty, the majority of such patients were transported back to the zone of the interior.

Peripheral nerve injuries constituted the heaviest neurosurgical load in World War II. Primary neurosurgery was not carried out. Efforts were made to segregate peripheral nerve injuries in special centers where within three to twelve weeks after initial injury secondary nerve suture was carried out. This subject is covered in considerable detail and is particularly well illustrated with line drawings, charts, and photographs. Follow-up studies of the peripheral nerve injuries are of particular importance.

The addition of Volume II concerning neurosurgery in World War II completes the wartime record of this surgical specialty. Both volumes will be valued by all neurosurgeons as well as by general surgeons, neurologists, urologists, and general practitioners, who are in some way concerned with the care of patients with head injuries, paraplegia, or peripheral nerve injuries.

PROCEEDINGS OF A SYMPOSIUM ON IMMUNIZATION IN CHILDHOOD, held in The Wellcome Building, London, 4th to 6th May 1959. Published by E. & S. Livingstone Ltd., Edinburgh and London. Distributed in the United States by The Williams & Wilkins Company, Baltimore 2, Maryland, 1960. 139 pages, \$4.25.

The title of the book establishes its character. The data and viewpoints presented by some ten individuals are typical of all symposia. Some sixty individuals attended the five sessions. All but seven were from the British Isles. Some of those attending entered into the discussions of the subjects presented and expressed their personal opinions and experiences. This symposium was held in May of 1959; the purpose as stated in the foreword: "The time has come to assess all the evidence which has accumulated and to attempt to reach agreement on certain basic principles which must be observed in all inoculation schedules." It seemed to this reviewer the real purpose of the symposium was to work out the confusion and disorganization that had developed in the field of immunization under the system of socialized medicine in England. Some lethargy in immunization procedures must have existed for it was not until 1942 that, according to the data presented, a vigorous drive for diphtheria immunization developed. Five sessions were held. Discussions covered the following subjects:

"The risks of immunization."
 "Provocative poliomyelitis."
 "Hazards of pertussis vaccination."
 "Faults in the sterilization of syringes and needles."
 "Personal records and recommended programs and techniques."

For American edification it would seem that such discussions were more academic than practical.

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BASIC OFFICE DERMATOLOGY—Stuart Maddin, M.D., Fellow, American Academy of Dermatology and Syphilology; Member of the Medical Staff of the Vancouver General Hospital, Vancouver, British Columbia; Julius L. Danto, M.D., Fellow, American Academy of Dermatology and Syphilology; Member of the Medical Staff of the Vancouver General Hospital; and William D. Stewart, M.D., F.R.C.P. (C), Clinical Instructor (Dermatology) Department of Medicine, Faculty of Medicine, University of British Columbia. With Forewords by Dr. R. F. Farquharson, M.D., University of Toronto, and M. B. Sulzberger, M.D., New York University. Charles C. Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960. 308 pages, \$11.75.

In the preface the authors state their manual is designed to make the average physician more knowledgeable in the management of the common dermatoses. The book is printed in double columns on good paper and is easy to read.

Attention is called to the need of eliciting a careful history, doing a proper physical examination and applying such diagnostic tests as may be indicated—as in all other fields of medicine.

The first section, comprising about two-thirds of the 296 pages of the book discusses the common dermatoses. Each is introduced with a sentence or two characterizing one or more salient features. The presentation in each instance then follows under the headings of significant facts, clinical appearance and course, histopathology, differential diagnosis, diagnostic aids, office management and suggested reading. There are many black and white photographs. Frequently where the manifestations are widespread, there are anatomical charts indicating the common (shaded) and most common (blackened) areas of involvement. Additional charts, drawings or diagrams are added in some cases.

Section II consists of sixteen color pictures of common dermatoses, two to a page. Unfortunately the photographs for the most part are not up to the quality of the book other-

wise. Many of the black and white pictures appear too dark and are not clear and sharp.

Section III devotes fifteen pages to regional dermatological diagnosis. The skin conditions most commonly involving areas such as the scalp, face, eyelids, lips, oral cavity, axillae, hands and wrists, genitalia, et cetera, are described in two or three sentences.

Section IV describes and illustrates the techniques for applying diagnostic procedures such as skin biopsy, examination for fungi and patch testing.

In the main portion of the book in the presentation of "office management" an effort has been made to emphasize a single effective therapeutic outline for each condition. In Section V, titled therapeutic adjuncts for resistant cases or clinical variants, various aspects of dermatological therapy are described in greater detail.

In Section VI diseases having a skin component but affecting multiple organs in the body are presented at some length. Disseminated lupus erythematosus, scleroderma, sarcoidosis, syphilis, tuberculosis, porphyria, xanthomas and others are covered.

Section VII is a short discussion of dermatologic allergy and the book closes with a chapter titled dermatological counselling based on physiology. Here the correct care of normal skin and hair, the influence of factors such as diet, weather and sun exposure, "permanent" waving solutions, bleaches and dyes, cosmetics and deodorants are discussed.

There is an excellent index.

I believe the book will be most helpful to students, general practitioners and physicians in other fields who wish a short and concise description of the more common skin diseases. It will aid those with a limited dermatological background in the diagnosis and treatment of uncomplicated common dermatoses. Considering the limitations imposed by brevity and the rather rigid confines of the outline system adopted for the book, I believe the authors have done very well.

HERMAN V. ALLINGTON, M.D.

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HANDBOOK OF NEUROLOGICAL DIAGNOSTIC METHODS—Edited by Fletcher McDowell, M.D., Assistant Professor of Medicine (Neurology), Cornell University Medical College; and Harold G. Wolff, M.D., Anne Parrish Titzell Professor of Medicine (Neurology), Cornell University Medical College. The Williams & Wilkins Company, Baltimore 2, Maryland, 1960. 201 pages, \$4.50.

This 200-page paper-bound manual has been written primarily for the medical student. Principles are outlined to help in eliciting an adequate history. An extremely detailed outline covering the neurological examination is presented. Brief descriptions are presented of numerous types of diagnostic measures, such as lumbar puncture, skull x-rays, pneumoencephalography, arteriography, laminograms, dural sinus venography, myelography and electroencephalography. Chapters on visual fields and ocular motility functions are especially well presented and contain excellent charts and drawings. Such topics as smell function, cystometrics, audiometry, caloric tests, sweating tests, and electrodiagnostic procedures are given in brief form. An introduction to selected clinical problems has been given concerning management of the comatose patient, acute head injuries, management of the delirious patient, status epilepticus, and ventilatory failure.

This handbook will be of little value to the practicing neurologist or neurosurgeon. It should be of value, however, to the medical student for whom it has been written. It will be useful also to the young physician beginning his training in the fields of neurology or neurosurgery or to the practitioner who finds it necessary to find a brief review of the nervous system.

ATLAS OF NEUROSURGICAL TECHNIQUES, AN—James L. Poppen, M.D., Neurosurgeon, The Lahey Clinic, New England Baptist Hospital, and the New England Deaconess Hospital; W. B. Saunders Company, Philadelphia, 1960. 522 pages, \$28.00.

This atlas, compiled by one of the most skillful and experienced American neurosurgeons, covers practically the entire scope of this entire surgical specialty. The contents are divided into five main categories, including head, neck, chest, and abdomen, extremities and spine.

All of these standard neurosurgical procedures are outlined in detail, giving particular attention to position of the patient, all steps in the technique of the procedure, and are accompanied by excellent line drawings. Very few photographs and x-rays are included. While an attempt has been made to classify the procedures considered in the first section concerning the head into extracranial skull and intracranial lesions and operations, the subject matter is so varied that the organization of this particular section seems poorly done. Those procedures concerning the neck, the trunk, extremities, and spine, lend themselves more readily to classification, and their presentation appears more orderly. The volume is well indexed, but no attempt has been made to provide references.

This atlas will have no appeal to anyone outside the field of neurosurgery; but to all concerned with this specialty, whether in training or in practice, this atlas will be of real and lasting value.

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DRUGS OF CHOICE, 1960-1961—Walter Modell, M.D., Editor; Director, Clinical Pharmacology, and Associate Professor of Pharmacology, Cornell University Medical College; Attending Physician, New York Veterans Administration Hospital. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo., 1960. 958 pages, \$13.50.

In his preface to the second (1960-1961) edition of *Drugs of Choice*, the editor states that the intention is to revise this book every two years. Although the second edition is only 27 pages larger than the first, eight new chapters have been added; obviously some old material has been deleted or shortened. Since your reviewer discussed the first edition in some detail in the January 1959 issue of *CALIFORNIA MEDICINE*, the present review will be concerned principally with these new chapters.

Chapter 2. Physical and Chemical Considerations in the Choice of Drugs is written by Doctors Lloyd C. Miller and Albert H. Holland. It emphasizes the importance of the physical condition of drug preparations in influencing gastrointestinal absorption and discusses "case-hardening" of tablets, nondisintegrating enteric coatings, salts vs. bases, liquid preparations, aerosols.

Chapter 7. The Choice of a Local Antiseptic is by Philip B. Price. Dr. Price defines antiseptics as "substances that, applied to microorganisms, render them innocuous, either by killing them or preventing their growth." He discusses disinfection of surgeons' and nurses' hands and of the field of operation, and the use of antiseptics in wounds.

Chapter 9. In this chapter Dr. Leighton E. Cluff discusses the Choice of Drugs for Viral, Spirochetal, and Rickettsial Infections, describing not only the use of anti-infective agents but also such ancillary drugs as norepinephrine, cortisone and inhalants.

Chapter 14. The authors of the Choice of Sedatives and Tranquilizers in General Medical Practice are Dale G. Friend and James T. Hamlin III. It consists largely of an abbreviated pharmacology of the drugs. Its chief virtue is in the comparative evaluation of the newest drugs of this group.

Chapter 21. The editor, Walter Modell and George C. Reader prepared the Choice of an Anorexiant. They have

written an excellent brief review of the problem of controlling diet in obesity and have described briefly the pharmacology and use of a long list of amphetamine congeners used to curb appetite.

Chapter 31. The Choice of Drugs in Endocrine Dysfunction is by Herbert S. Kupperman and consists of 30 pages of carefully written discussions not only of the actions of all the hormone preparations but of clinical conditions in which they are used.

Chapter 38. This chapter on the Choice of Drugs for Ophthalmic Use by Irving H. Leopold achieves well the purpose of the book to provide "a practical guide to the selection of the best drug for a particular therapeutic problem." The author discusses a large variety of locally and systemically acting drugs, how to modify their absorption and action, how to choose a particular drug for a particular indication.

Chapter 39. The Choice of Drugs for Otolaryngologic Disorders by William H. Saunders is unfortunately not up to the standard of the rest of the book. Nearly half of the chapter is devoted to describing clinical conditions of the ear and nose which would be already well known to the reader and the discussion of drugs is too rudimentary.

In his preface to this second edition Dr. Modell explains that the Drug Index, which in the first edition was divided among the individual chapters, is collected into a single list. This occupies 100 pages of the 958 pages of the entire book, including the general index. Your reviewer wishes to repeat the final statement in his review of the first edition. "Since now nearly every physician receives an annual copy of 'PDR' which includes this information and more, the 'Drug Index' could well be omitted and thus reduce the cost without reducing the value of this book."

CLINTON H. THIENES, M.D.

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MANUAL OF HAND INJURIES—2nd Edition—H. Minor Nichols, M.D., Clinical Instructor in Surgery, University of Oregon Medical School, Portland; and Member of American Society for Surgery of the Hand; American Association for the Surgery of Trauma; Western Surgical Association; Societe Internationale de Chirurgie. Foreword by Michael I. Mason, M.D. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1960. 400 pages, \$11.00.

The second edition of *Manual of Hand Injuries* by H. Minor Nichols has been expanded by some 50 pages which represent, for the most part, additional material.

A chapter on crush injuries of the hand appears, and additions to other chapters include such topics as cross-finger flaps, expanded use of K. wires for skeletal fixation, carpal tunnel syndrome, etc. The anatomical plates have been reproduced in color, and additional line sketches added here and there for clarity. The index has also been expanded for better reference.

The general text remains essentially unaltered and presents the primary care of traumatic hand injury in a systematic way, dealing with structure by structure, and when possible tying the information together by presentation of selected personal cases. Various reparative methods are presented with the author generally indicating his preference.

Minimal space is devoted to late reconstruction and nontraumatic conditions of the hand at the end of the text, but this serves to give some insight into the vast field of surgery of the hand.

Although prepared principally for medical students and house officers, the second edition should have a broad appeal for the surgeons called upon to care for acute hand injuries.

L. D. HOWARD, JR., M.D.

ATLAS AND MANUAL OF DERMATOLOGY AND VENEREOLOGY—Professor Dr. W. Burckhardt, Director of the Municipal Polyclinic for Skin and Venereal Diseases, Zurich, Switzerland. Translated and Edited by Stephan Epstein, M.D., Marshfield Clinic, Marshfield, Wisconsin; Clinical Associate Professor of Dermatology, University of Minnesota School of Medicine, Minneapolis, Minnesota. The Williams & Wilkins Company, Baltimore 2, Maryland, 1959. 276 pages, \$14.00.

As stated in the Preface to the American edition, Professor Burckhardt's Atlas and Manual of Dermatology and Venereology is a book intended for practitioners in non-dermatologic specialties and for medical students. For this reason only the more common dermatoses are discussed. The coupling of the verbal and pictorial descriptions is oriented toward diagnosis. Controversial material is avoided and current therapy is emphasized.

A brief summary of cutaneous anatomy is presented first, followed by definitions and diagrams of the primary and secondary skin lesions. Then follow chapters covering the various types of dermatoses such as infectious diseases, inflammatory diseases of unknown etiology, allergic dermatoses, metabolic disturbances of the skin and numerous other categories, through the precancerous lesions, malignant lesions and venereal diseases. The common conditions in each group are illustrated and discussed. The text is succinctly but interestingly written. The concepts presented of pathogenesis and treatment are up-to-date, but the discussion is necessarily abbreviated. However, the material presented is wisely selected to fulfill the requirements of the intended readers.

Of special interest to any physician perusing this book are the especially well reproduced and strikingly beautiful color photographs of most of the conditions discussed. It is unusual to find so many such illustrations in a book of this size and price. A number of good quality black and white photographs are also included. An extensive list of current dermatologic texts and monographs is appended following the last chapter.

This pleasing volume represents a successful attempt to combine outstanding color and black-and-white clinical photographs of many common dermatologic conditions with a concise, modern text. It should be of interest and value to any physician concerned with diagnosis of skin disease.

DONALD H. PAULSON, M.D.

CLINICAL PROSTHETICS FOR PHYSICIANS AND THERAPISTS—A Handbook of Clinical Practices Related to Artificial Limbs—Written by Miles H. Anderson, Ed.D., Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles; Charles O. Bechtol, M.D., Professor of Surgery (Orthopedics), Department of Surgery, School of Medicine, University of California, Los Angeles; and Raymond E. Sollars, Associate Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles. Charles C. Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959. 393 pages, \$10.50.

This excellent book contains detailed information concerning artificial limbs for major amputations of the upper extremities and above knee amputations of the lower extremities. Emphasis is on conventional harness and controls, although biceps cineplasty is adequately discussed.

The care and conditioning of the amputation stump from the time of surgery until limb fitting is clearly explained with welcome stress on the importance of proper daily bandaging technique to "shrink and shape" the stump. Diagrams indicate how the bandages are applied.

The training of the amputee in the proficient use of his prosthesis is considered in great detail. Special techniques used in dressing, eating, etc., are included, as well as check

lists in prosthetic use, tests of proficiency, and specific items of equipment for use in training and testing. Problems of different age groups, work requirements, and individual complications such as phantom pain and stump dermatitis are covered.

The text is presented in outline form with pertinent illustrations. There is considerable technical information, but reading interest is maintained by occasional highlights such as the twenty-six page section on "Locomotion" which represents the essence of many years research on artificial limbs.

This book will be of great assistance to the therapists and physicians who are responsible for the care and rehabilitation of the limbless.

The casual reader who rarely sees an amputee will be impressed by the considerable time and effort necessary to attain proficiency in the use of the prosthesis. He will understand the advantages of the "team" approach and become acquainted with the problems of the amputee, prosthetist, therapist, and physician in their mutual goal of rehabilitation.

CALVIN K. TERWILLIGER, M.D.

FOURTH TISSUE HOMOTRANSPLANTATION CONFERENCE—Annals of the New York Academy of Sciences, Volume 87, Art. 1; Pages 1-607. Published by the New York Academy of Sciences, 2 East Sixty-third Street, New York 21, New York, 1960. 607 pages, \$5.00.

In his introductory remarks to this collection of 49 papers on related problems of homotransplantation, Converse quotes the remark of Woodruff in 1957 that for the surgeon, at least, the successful solution to the immunological problems of whole organ transplants, bids fair to open a new and exciting field, and a new meaning will be found for the motto, "No man is born for himself alone." The technical aspects of whole organ transplants which were first described the early part of the century may be considered the simplest part of the problem and may be well on the way to solution. Experimentally successful transplants with function have been described for the heart (14 days), heart and lungs (5 days), kidney (31 days), liver (8 hours). The splendid work of the Brigham group on kidney transplants in twins, of course, from the immunological point of view, is autografting, but the technical lessons learned are invaluable.

Research in the basic field has followed three main lines: (1) A search for actual mechanisms of homograft rejection; (2) a study of altered reactivity patterns; (3) a phylogenetic search for homograft rejection patterns in lower animal species. The papers in this volume encompass all these headings and mark the emergence of tissue homotransplantation research as a specialized discipline which Converse and Rappaport suggest should be called transplantation biology.

The difficulties which the interested clinician will encounter in the new field are well pointed up in the last paper of the volume on "Transplantese" by Gorer. The jargon of the researchers in the field will not be understandable without considerable study.

Although earlier research suggested that homografts must fail because of the immunological response of nuclear material between host and graft, there is slowly emerging a body of evidence to suggest that this reaction can be modified. Sufficient modification so that a practical means of tolerance of a graft can be developed is still far away but the glimmer of hope exists.

This volume is of value as a reference for workers in the field.

ROY COHN, M.D.

OFFICE ASSISTANT, THE—In Medical Practice—Second Edition—Portia M. Frederick, Instructor, Medical Office Assisting, Long Beach City College; and Carol Towner, Director of Special Services, Communications Division, American Medical Association. W. B. Saunders Company, West Washington Square, Philadelphia 5, Pa., 1960. 407 pages, \$5.25.

Since the present trend in the majority of doctors' offices is to employ women who are not trained nurses and secretaries who frequently are not familiar with medical terminology and practices, this book is invaluable as an office manual.

It is a comprehensive coverage of the manifold duties in any doctor's office which will be most valuable in relieving him so he may devote more time to his professional duties. It combines in a logical manner the medical-secretarial requisites for the one-girl office and coordinates the work for an office which hires more than one girl. It treats practically all of the problems encountered in a doctor's office without becoming technical and regardless of field of specialization.

Especially to be recommended is the chapter dealing with medical ethics and etiquette. This is one of the most important phases of a doctor's practice, one of which the patients are the most critical, and one which may harm the patient-doctor relationship the most if not learned and practiced.

As a reference or as a refresher, this book has a place in every doctor's office.

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PHARMACOLOGY AND THERAPEUTICS—A Textbook for Students and Practitioners of Medicine and Its Allied Professions—Fourth Edition, Revised and Enlarged—Arthur Grollman, Ph.D., M.D., F.A.C.P., Lecturer in Pharmacology and Toxicology, The Medical Branch, and Professor and Chairman of the Dept. of Experimental Medicine, The Southwestern Medical School, The University of Texas, Lea & Febiger, Washington Square, Philadelphia 6, Pa., 1960. 1079 pages, 217 illustrations with two in color, \$12.50.

The author states that "although only two years have elapsed since the appearance of the last edition, the rapid rate of progress in the fields of Pharmacology and Therapeutics has necessitated a revision of the present book." At first glance one sees a close similarity in the third and fourth editions, but careful page by page analysis discloses many new items in the fourth. Examples are a new paragraph on species as a factor modifying drug action, expansion of the discussions on drug toxicity and factors contributing to the termination of drug action, an additional three paragraphs on biological assay, introducing the reader to the idea of statistical analysis, a page on theories of anesthesia which contributes little since it is too brief to give the novice any idea of the factual backgrounds and offers nothing to the teacher. Among anesthetics, descriptions of halothane (Fluothane), methitural, thialbarbital and hydroxydione sodium succinate (Viadril) have been added. The chapter on alcohol has been rearranged, but few facts are added. There is an added paragraph differentiating between addiction and drug habit. This should have been included in earlier editions since no helpful information has been disclosed in laboratories or clinics in this regard in the last two years.

Dr. Grollman has departed from the arrangement of previous editions in that therapeutic use of the opium-type analgetic drugs is discussed under one heading, thus giving better opportunity for comparing their values for each therapeutic indication. He has done this also for other groups of like-acting drugs. He has added a page explaining the mechanism of action of ganglionic blocking agents, the same for neuromuscular block and other agents. A comparative table of characteristics of digitalis preparations

has been compiled. The section on drugs acting in urinary tract infections follows anti-tuberculosis drugs rather than following local anti-infectives; this change is not justified. The section on dihydrostreptomycin does not take into consideration the more recent attitude toward this drug as more dangerous to the eighth cranial nerve than streptomycin. And so on. Seventy-two or more new drugs were added but many of them are only mentioned and few are discussed critically.

The material is included in the same 44 chapters, with the same titles as in the third edition, and the chapters are grouped in the same nine parts. The same lucid descriptions, scholarly presentations and fine synthesis of basic concepts and clinical applications are to be found in this fourth edition as were characteristic of the earlier editions. It is an ideal text for the medical student and for the physician's reference shelf.

CLINTON H. THIENES, M.D.

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SELECTED DISEASES—A Bibliography of Internal Medicine—Arthur L. Bloomfield, M.D., Professor of Medicine, Emeritus, Stanford University School of Medicine. The University of Chicago Press, 5750 Ellis Avenue, Chicago 57, Illinois, 1960. 312 pages, \$6.00.

Scarcely two years ago Dr. Arthur Bloomfield, emeritus professor of medicine at Stanford University School of Medicine, gave us a brilliant annotated bibliographical study on the communicable diseases. Therein he established a new technique to guide students through the major writings which have brought us to our present position in the understanding of disease. In the present volume Dr. Bloomfield follows essentially the same pattern, selecting twenty-one diseases "of old and honorable lineage" from auricular fibrillation to trichinosis. References of fundamental importance with generous excerpts, translated where not in English, have been gathered and put together so as to provide, with the annotations, an almost continuous narrative in "an attempt to bridge the gap between past and present in medicine."

The attempt has been eminently successful. Nonetheless, there are some notable omissions. In the discussion of Stoke-Adams although W. H. Gaskell's classical paper is given due prominence, no reference is made to his superb survey of the position up to 1900 which appeared in E. A. Schäfer's *Textbook of Physiology* of that date; a survey which brings into proper perspective the contributions of Stannius, Kent, his and many others to heart block and which is far superior to some of the publications cited. Likewise, in the discussion of diabetes mellitus, the reviewer finds no mention whatsoever of the work of Lydia de Witt who, basing her experiments on the observations of Schulze and Sobolew, approached diabetes in the same manner as Banting and produced a potent and active insulin; nor of E. L. Scott, who, as Banting himself had said, had come closer than anyone to solving the problem. The section on diabetes insipidus also leaves much to be desired, especially on the very difficult problem and involved literature on the control of water balance. Surely the remarkable findings of the Scharrers demand inclusion in any consideration of this subject.

Despite the omissions in which we must bow to the judgment of the author attempting to achieve balance, it can only be said that this is a superb book, original in concept and masterful in execution. It should be at the bedside of every physician, young and old, interested in clinical medicine. The great importance of the work lies in providing perspective since, to use Sir Winston Churchill's dictum made before the Royal College of Physicians in March 1944, "The longer you can look back, the further you can look forward" and there is a master physician to show the way.

J. B. DE C. M. SAUNDERS, M.D.

EARLY DIAGNOSIS—Edited by Henry Miller, M.D., F.R.C.P., Physician in Neurology, Royal Victoria Infirmary, Newcastle upon Tyne. The Williams and Wilkins Company, Baltimore 2, Maryland, 1959. 400 pages, \$6.50.

In Great Britain, which has developed a socio-economic system of medical care somewhat different from that in the United States, the general practitioner has far more patients to care for, far less time per patient, and far fewer hospital responsibilities than in this country. There is a much greater gap between the practitioner and the hospital specialist. And the natural history of disease is more difficult for the general practitioner to follow.

This book is written to give the general practitioner a greater acquaintance with some of the aspects of medicine which often are covered only by implication in standard English texts. It is in the form of some twenty-five essays by a number of Great Britain's most distinguished specialists. The result is a book of good admonitions on early diagnosis.

The tone is set in the first essay, by Lord Cohen of Birkenhead ("The purpose of diagnosis is action . . ."), who enunciates nine guiding principles ending with: "Never allow the social position of a patient to limit your examination." This principle is punctuated by such salty remarks as: "Cancer of the rectum is no respecter of persons—if you don't put your finger in it, you put your foot in it . . . nor should rank blind one to the possibility of such diseases as syphilis, for every bishop has been an undergraduate, and every admiral a midshipman."

Some of the advice given is contrary to usual American experience. For example, regarding the practice of routine cytology smears for cervical cancer, Stabler remarks: "... practical considerations make the investigation of doubtful value under ordinary circumstances . . . it seems unlikely that smear examinations will lead to any significant alteration in mortality rates." And the serum iodine level for thyroid disease, employed freely in the United States, is passed over by Dunlap as "a delicate and difficult procedure which is seldom available for routine use."

For the most part, however, the essays are informative, the presentation and the writing are interesting. This volume can be recommended to the general medical reader.

EDGAR WAYBURN, M.D.

CLINICAL ENDOCRINOLOGY I—Edited by Edwin B. Astwood, M.D., Grune & Stratton, New York, 381 Fourth Ave., New York 16, N.Y., 1960. 724 pages, \$18.75.

Clinical Endocrinology I began as a second edition of Progress in Clinical Endocrinology, published some 10 years earlier under the editorship of Samuel Soskin. As the present book took shape under the editorship of Edwin Astwood, it was realized that it was properly not a revision, but in effect a new volume. Most of the chapters are made up of new material written by new authors; a number are monographs of lasting value.

Clinical endocrinology is a broad field of medical science and practice. In this book, sharp lines have not been drawn between what may be considered clinical or nonclinical, although the emphasis is on the former. Also, complete coverage of clinical endocrinology has not been attempted. The aim has been to provide concise, authoritative articles written by authors with considerable personal experience in their respective fields. In a few instances, there are fairly extensive reviews with more complete documentation, but in most cases, only key references have been cited.

Classic and well established material has, in some cases, been supplanted by topics selected largely on the basis of their current interest and importance. As a consequence, some areas have been dealt with more thoroughly than

others, and some subjects have not received the attention they would deserve in a work of more extensive scope. Within this framework of limitations, however, a great deal of useful information and many interesting articles on a fairly wide range of topics have been included.

This is an excellent volume for the physician or the student with an interest in endocrinology to own, to browse through at his leisure, to spend more time with when he can. It is also a book for the shelves of medical schools and hospitals, to provide good present day reference in the rapidly growing and changing field of clinical endocrinology.

EDGAR WAYBURN, M.D.

CLASSICS OF MEDICINE AND SURGERY—(Formerly titled: *Epoch-making Contributions to Medicine, Surgery and the Allied Sciences*)—Collected by C. N. B. Camac. Dover Publications, Inc., 180 Varick Street, New York 14, New York, 1960. 435 pages, \$2.25.

SOURCE BOOK OF MEDICAL HISTORY—Compiled With Notes by Logan Clendening, M.D. Dover Publications, Inc., 180 Varick Street, New York 14, N. Y., 1960. 685 pages, \$2.75.

This pair of source books of medical history make a useful working combination for those interested in the development of knowledge. Clendening's book is the more comprehensive if the more sketchy of the two: beginning with excerpts from the Egyptian papyri of the second millennium B.C., there are some 700 pages of excerpts from the writings of nearly every great doctor until the end of the nineteenth century. Although the selections are brief, there are descriptive notes and bibliographical references. Camac on the other hand has concentrated his interest on only seven epoch-making discoveries, but he has quoted at length and in some cases completely the original text. Antisepsis, circulation of the blood, percussion of the chest, auscultation of the chest, vaccination against smallpox, anesthesia and puerperal fever are the important subjects which are considered.

Both volumes are well edited with sufficient explanatory material to set the stage even for readers unfamiliar with the subject. These inexpensive but excellent reprints will do a service to the understanding of medical history.

ARTHUR L. BLOOMFIELD, M.D.

BASIC FACTS OF BODY WATER AND IONS—Stewart M. Brooks, M.S., Science Instructor, Lasell Junior College, Auburndale, Mass. Instructor in Pharmacology at Boston City Hospital School of Nursing, and Children's Hospital School of Nursing, Boston, Mass. Springer Publishing Company, Inc., 44 East 23rd Street, New York 10, N. Y., 1960. 159 pages, \$2.75.

This book is a stated attempt to bring basic understanding of fluid and electrolyte problems to students of nursing, pharmacy and medical technology. As such, it is an acceptable contribution largely because of the attractively low price. A 69-page Part I covers the basic chemical and physical principles in an informative style that should provide good reading for medical students as well as paramedical personnel. In the 65-page Part II the author deals with clinical applications of fluid and electrolyte problems. Unfortunately, his clinical naiveté makes this section of little value to the medical student. The attempt to cover a large field with brevity and the failure, in many instances, to develop the clinical discussions on sound chemical concepts make me doubt if Part II will prove particularly valuable to nursing, technical and pharmacy students.

TELFER B. REYNOLDS, M.D.

PROSTHETIC PRINCIPLES—ABOVE KNEE AMPUTATION—Miles H. Anderson, Ed.D., Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles; John J. Bray, C.P., C.O., Associate Research Prosthetist, Prosthetics Education Project, School of Medicine, University of California, Los Angeles; and Charles A. Hennessy, C.P., C.O., Associate Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles. Edited by Raymond E. Sollars, Associate Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles. Charles C. Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959. 331 pages, \$10.00.

This highly technical work explains in great detail the process of developing and fitting the above knee prosthesis. There are many photographs illustrating this complicated procedure and the book should be of considerable value to the prosthetist.

There is a preliminary discussion of functional anatomy and locomotion and a chapter on the biomechanics of above-knee prosthesis fitting and alignment which would be of interest to the physician working with amputees.

CALVIN K. TERWILLIGER, M.D.

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CARCINOMA OF THE THYROID GLAND—A Clinical and Pathologic Study of 293 Patients at the University of California Hospital—Stuart Lindsay, M.D., Professor of Pathology, University of California School of Medicine; Pathologist, H. C. Moffitt Hospital, San Francisco, California; and Director of Laboratories, Sequoia Hospital, Redwood City, California. Charles C. Thomas, Publisher, 301-327 East Lawrence Avenue, 1960. 168 pages, \$8.50.

Carcinoma of the thyroid is an intriguing disease. There is much controversy about the diagnosis, the degree of malignancy and the best form of treatment whenever the topic is discussed. The therapist is much influenced by his own experience and the impressions gained from what he recalls of that experience.

What Dr. Lindsay has done has needed doing for many years. In his study of the 293 cases from the University of California he has classified the cases according to the Warren and Meissner Atlas of Tumor Pathology and has modified this to a minor degree so that for the first time surgeons and pathologists can tie their own classifications into the picture of malignant goiter in a way that is understandable.

Cancers of the thyroid are classified by Dr. Lindsay as papillary, follicular and anaplastic. He has illustrated the gross and microscopic pattern of these tumors and has given a typical life history of each type as exposed by this study of 293 cases. He has made graphs and statistical studies which are by far the most complete of any produced up to this time. For the first time it is now possible for a surgeon or his consulting pathologist to classify the growth present in his patient and then by reference to the table to get a fair idea of the prognosis in this specific case. The follow-up studies have been so thoroughly prepared that by reference to this work one can closely determine the likelihood of recurrence, distant metastases, response to therapy and, best of all, be guided somewhat in selection of the proper therapy, the need for neck dissection or a determination as to the necessity of radiation therapy applied either externally or internally.

Following a minute study of the material contained in this treatise it is not hard for the reader to reach the same conclusions as those reached by Dr. Lindsay. In the excellent bibliography a reference is made to the work of the advocates of radical surgery in papillary carcinoma as well as the advocates of less radical surgery and then it is pointed out how the data in these 293 cases bear out or deny the contention of the two schools of thought. For instance, the

finding of 30 per cent involvement of the opposite lobe in papillary carcinoma makes one wonder about the advisability of doing a hemithyroidectomy in these cases.

That all the problems of cancer of the thyroid have not been solved is proved by the following quotation from Dr. Lindsay's book: "Martin,⁷⁴ Crile,³ and Underwood and coworkers³¹ have claimed good results from the form of therapy which each employs. It remains to be proved whether biologic activity of the neoplasm and the resistance of the host, or the therapy employed is the more important factor in the final outcome of the disease. The present study strongly suggests the advisability of a more radical approach to surgical therapy in males and in patients in the older age group (over 40 years of age), since the data presented indicate that thyroid neoplasms in these groups of patients are more aggressive than in females or in younger individuals."

To this reviewer it seems that the bibliography which covers 78 references and the index which covers approximately six pages make this work of Dr. Lindsay an invaluable part of the library of anyone interested in the subject of cancer of the thyroid. The data contained in this review can be found nowhere else in the literature including that data from the Armed Forces Institute of Pathology which is the bible of serious workers in this field. Your reviewer has been eagerly awaiting the data offered in this treatise and feels that it is a most valuable contribution to the subject.

ROBERTSON WARD, M.D.

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SURGERY OF REPAIR AS APPLIED TO HAND INJURIES—Second Edition. B. K. Rank, C.M.G., M.S. (Melbourne), F.R.C.S. (England), F.R.A.C.S.; Honorary Plastic Surgeon, Royal Melbourne Hospital; Visiting Plastic Surgeon, Repatriation Commission, Victoria; and A. R. Wakefield, M.S. (Melbourne), F.R.C.S. (England), F.R.A.C.S.; Plastic Surgeon, Royal Children's Hospital, Melbourne. Foreword by Sir Gordon Gordon-Taylor, K.B.E., C.B. The Williams & Wilkins Company, Baltimore 2, Maryland, 1960. 284 pages, \$9.00.

This text, which initially appeared in 1953, now comes out in a revised and improved second edition but without expansion beyond the purpose of the original undertaking.

Written by two eminent Australian plastic surgeons, the material of the text is mainly limited to the treatment of acute traumatic injuries of the hand with particular emphasis on the soft tissues. A chapter devoted to late reconstruction of the injured hand serves more as an introduction to this phase of repair.

The value of the book lies in the plastic aspects of soft tissue repair which are treated in detail and in a more comprehensive manner than found in other texts on hand surgery. Wound evaluation from the standpoint of repair is clearly outlined, and consideration of problems of tissue viability, methods of covering defects, selection of best type of skin cover, etc., are presented in a practical way.

The more definitive plastic procedures such as Z-plasty, rotational flaps, cross finger flaps, and all forms of both free skin grafts and soft tissue flaps and pedicles are given with reasons pro and con for their use. All phases of the treatment of the burned hand are also included.

Thus, from the standpoint of soft tissue repair, the context is excellent and as complete as could possibly be expected in any single volume. In addition, the text is well organized and indexed and easily read and understood.

There are so many good points on the problems of primary hand repair that any surgeon doing this type of work could not fail to profit by the serious reading of the entire book.

L. D. HOWARD, JR., M.D.

THE ACUTE MEDICAL SYNDROMES AND EMERGENCIES—Diagnosis and Treatment—Albert Salisbury Hyman, M.D., Associate Clinical Professor of Medicine, New York Medical College, New York, N. Y. With the collaboration of Samuel Weiss, M.D., Professor of Gastroenterology Emeritus, New York Polyclinic Medical School, New York, N. Y.; George Guttman Ornstein, M.D., Associate Clinical Professor of Medicine, New York Medical College, New York, N. Y.; Howard F. Root, M.D., Medical Director, Joslin Clinic, Boston, Massachusetts; Anna Ruth Spiegelman, M.D., Assistant Professor Clinical Medicine, New York University Postgraduate Medical School, New York, N. Y.; and Jack Abry, M.D., Associate Attending Physician, New York City Hospital, Elmhurst, N. Y. Landsberger Medical Books, Inc., New York, 1959. 442 pages, \$8.75.

When the idea of this volume was conceived, the editor polled physicians throughout the United States to determine the subjects which should be covered. There was general agreement among the answers that cardiovascular, gastrointestinal, and pulmonary problems were the most common emergencies encountered. Next in order of frequency came acute diabetic problems, acute nephritic crises with uremia, urinary suppression and edema, and acute barbiturate poisoning. The contents of the book follow these six headings, each subject being written by a different collaborator.

The book takes up the common problems involved in the diagnosis and treatment of each of these subjects. In an effort to keep it as concise as possible, the authors have left the coverage somewhat superficial: Anatomic, physiologic, and other basic science material has been omitted. On the other hand, there is free discussion of the clinical aspects as the authors see them.

There is considerable unevenness in the coverage of the different subjects—which is out of proportion to their importance or the frequency with which they are encountered. One half of the book (by the principal author) is devoted to cardiac conditions. Consequently there is much more emphasis on cardiac problems than any other kind.

The diagnosis and treatment of hemorrhage from the oral cavity is discussed separately under both gastrointestinal and pulmonary systems, although in practice the first important problem of the emergency is to determine the source of bleeding, regardless of the system. The reviewer suggests that this and other emergency syndromes might be discussed best under the heading of their principal manifestations. (In general, the author of the section on gastric hemorrhage attempts to do this. But such fairly common causes of hemorrhage as bronchial adenoma and pharyngeal bleeding are lost in between chapters.)

Despite these deficiencies we feel that this is a book which can be valuable as a quick source of information to the doctor dealing with acute medical syndromes and recommend it accordingly.

EDGAR WAYBURN, M.D.

MEDICAL, SURGICAL, AND GYNECOLOGICAL COMPLICATIONS OF PREGNANCY, by the Staff of the Mount Sinai Hospital, New York City—Edited by Alan F. Guttmacher, M.D., Obstetrician and Gynecologist-in-Chief, The Mount Sinai Hospital, New York; and Joseph J. Rovinsky, M.D., Assistant Attending Obstetrician and Gynecologist, The Mount Sinai Hospital, New York. The Williams & Wilkins Company, Baltimore 2, Maryland, 1960. 619 pages, \$16.50.

This new book represents the combined efforts of 68 members of the staff of New York's Mount Sinai Hospital, and is an outgrowth of the obstetrical department's organizational pattern set up there in 1952 by Alan Guttmacher, chief of the service. Ten specialty clinics were established to handle prenatal patients with various medical, surgical, and psychiatric problems, and the accomplishments in these areas have stimulated a hospital-wide interest

in pregnant women. A natural consequence of this interest was the preparation of a book which would bring together in usable form the opinions and experiences of clinicians who had grappled with various segments of the almost endless array of disorders that may be associated with pregnancy.

As one would anticipate, much of the material is an extension of what can be found in the larger textbooks of obstetrics, gynecology, and internal medicine. The volume is reminiscent of the earlier (1934) effort of Adair and Stieglitz, whose "Obstetric Medicine," the work of nearly 40 nationally known authorities, had a brief flurry of popularity but never managed to appear again in revised form.

The book has 14 sections arranged according to bodily systems (pulmonary, gastrointestinal, and so forth) or by clinical disciplines, such as surgery, gynecology, and dermatology. Toward the end there is a section on malignant tumors in relation to pregnancy, with major emphasis on cancer of the thyroid, and finally a short but very good survey of genetic considerations in relation to medical counseling. In brief, one might say this is a collection of 49 reviews of quite variable length, some of which have been expanded by the inclusion of personal experiences and opinions. Such a volume is of considerable immediate interest as a reference work, but, if it is to continue to warrant a place on the obstetrician's shelf, it must be revised vigorously at rather frequent intervals. We may assume that the editors have already recognized this problem because, as they say in the preface, an attempt was made "to keep the material current" by largely excluding references to literature more than ten years old.

Residents and interns should have access to this volume in hospital or departmental libraries, and undoubtedly many practitioners will want to have it for quick reference in the office despite the high initial cost and the threat of rapid depreciation.

C. E. McLENNAN, M.D.

YOUR HEART: A HANDBOOK FOR LAYMEN—H. M. Marvin, M.D., Associate Clinical Professor of Medicine, Yale University School of Medicine, Past President, American Heart Association, Former Member National Advisory Heart Council (U. S. Public Health Service). Doubleday & Company, Inc., 575 Madison Avenue, New York 22, New York, 1960. 335 pages, \$4.50.

Marvin's book is by all odds the most complete, balanced, and authoritative book on diseases of the heart for laymen. It is clearly written, judiciously covers many controversial issues and in a way that will obtain the approval of most cardiologists and at the same time manages not to be frightening.

Dr. Marvin is a well-known, experienced cardiologist who, in his role as past president of the American Heart Association, had many opportunities to appreciate the needs and reactions of laymen with respect to diseases of the heart. His book can be very strongly recommended to all intelligent individuals who want to obtain up-to-date information on this important subject. If any criticism at all can be made it is that at times Marvin seems to be somewhat more detailed than the average person might be able to grasp. This may be under-rating the public, however.

The book contains chapters on all types of diseases of the heart and not merely coronary heart disease. It discusses such factors as stress and strain, diet, tobacco, rehabilitation, and controversial subjects such as anti-coagulants. It is, therefore, a very comprehensive work and not merely an essay on health.

The reviewer believes that many physicians will want to recommend this book to their patients.

MAURICE SOKOLOW, M.D.